

A proposed design model of a Rehabilitation Centre to facilitate the integration of recovered mental patients into the community

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Thesis

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(Abstract)

In developing countries like Ghana, more prominence is given to physical health than mental health, which is considered by some societies as a curse or a taboo. It is therefore difficult for people to immediately decide what to do when a person is suffering from mental illness because of the myth surrounding it. Instead of reporting mental illness to the hospital for early treatment, people prefer to take them to churches, prayer camps and shrines to seek spiritual healing. However where conditions are conducive towards recovery some people seek for treatment. On the average, 60% of those who seek help in any of the psychiatric hospitals in Ghana are left abandoned by their relatives in these hospitals. These patients when abandoned find it difficult to fend for themselves after recovery and therefore are reluctant to leave the hospital environment. This has therefore resulted in the psychiatric hospitals housing about 30% of their recovered patients in addition to those under treatment in the hospitals. This has therefore created congestion, put a strain on governments' budget and above all deprived these people from taking full charge of their lives and contribute to economic development. The few who are able to get back into the community normally are left with lives that are emotionally and socially shattered and unproductive.

The goal of this proposed psychiatric rehabilitation centre is to help patients to develop the emotional, social, vocational and intellectual skills needed to live, learn and work in the community with the least amount of professional help. Ghana Governments' policy of decentralization of mental health services can be realized by providing the proposed model of psychiatric rehabilitation centre in all the regions of Ghana. This will help reduce the burden of housing the extra 30% recovered patients in the psychiatric hospitals to 10% patients in 2015 and none by 2020. Thus not only all recovered patients currently in the psychiatric hospitals should be able to fit well and play their role in the society by 2015, future mental patients will also benefit from the rehabilitation centre.



DECLARATION

I declare that I have personally undertaken the study herein

Date

Signature

SYLVIA POKUAH OWUSU

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KNUST

I declare that I have supervised the student in undertaking this study and confirm that she has my permission to submit it.

Date

Signature

DR. VICTOR K. QUAGRAINE

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As the course coordinator, I declare that the student under supervision executed this thesis wholly

Date

Signature

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Dedication

This thesis report is dedicated to the blessed memory
of my late father, Mr. Henry Owusu Peprah,
my family and all who contributed in
making this project a reality



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I am extremely grateful to God for his mercies, blessings, love, strength, courage and convictions throughout my education. I will forever remain thankful to the Almighty God. I am also grateful to my family most especially my parents for their immense support, advice and encouragement throughout my course.

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Table of Content

List of Figures.....	xi
List of Tables.	xii
Chapter 1 Introduction.....	1
1.1 Preamble	1
1.1.1 Background	2
1.2 Scope.....	3
1.3 Problem Statement.....	3
1.4 Research Objectives.....	5
1.5 Justification.....	5
1.6 Research method.....	5
1.7 Research contribution	5
Chapter 2 Literature Review	7
2.1 Population Trend in Ghana	7
2.2 Psychiatric Care in Ghana.....	8
2.2.1 History of Psychiatric care in Ghana	8
2.2.2 Current Trend of Psychiatric care in Ghana	9
2.2.3 Spiritual Treatment	10
2.2.3.1 <i>Reasons why people still prefer prayer camps</i>	11
2.3 Causes of Mental Illness	12
2.3.1 Biological factors responsible for mental illness	12
2.3.1.1 <i>Genetics (heredity)</i>	13
2.3.1.2 <i>Infections</i>	13
2.3.1.3 <i>Brain defects or injury</i>	13
2.3.1.4 <i>Prenatal damage</i>	13
2.3.1.5 <i>Substance abuse</i>	14
2.3.1.6 <i>Other factors</i>	14
2.3.2 Psychological factors responsible for mental illness	14
2.3.3 Social factors responsible for mental illness.....	14
2.4 Stigma	14
2.4.1 Effects of stigma	15
2.4.2 Strategies to combat stigma	15
2.5 Recovery from mental illness	16
2.5.1 Strategies to Recovery	17
2.5.1.1 <i>Hope</i>	17
2.5.1.2 <i>Empowerment</i>	17
2.5.1.3 <i>Self responsibility</i>	17

2.5.1.4	<i>Establishing a meaningful role in life</i>	18
2.6	Psychiatric health services in Ghana.....	18
2.6.1	Length of stay in Psychiatric Hospital	18
2.6.2	Admissions, Discharges and Death in the 3 main P. H.	19
2.7	Rehabilitation.....	23
2.7.1	The significant of Spa in a Rehabilitation centre.....	23
2.7.1.1	<i>Relaxation</i>	23
2.7.1.2	<i>Pampering</i>	24
2.7.1.3	<i>Cleansing</i>	24
2.7.1.4	<i>Beauty</i>	24
2.8	Case Studies on Rehabilitation centres & health spa.....	24
2.8.1	Kumasi Cheshire Home	25
2.8.1.1	<i>Aims and Objectives</i>	25
2.8.1.2	<i>The purpose of studying Kumasi Cheshire Home</i>	25
2.8.1.3	<i>Conclusion</i>	26
2.8.2	Information Rehabilitation and Research Centre.....	27
2.8.2.1	<i>Background information</i>	27
2.8.2.2	<i>Acitivities performed</i>	27
2.8.2.3	<i>Amenities</i>	28
2.8.2.4	<i>Conclusions</i>	30
2.8.3	Holy Trinity Spa and Health Farm	30
2.8.3.1	<i>Planning</i>	30
2.8.3.2	<i>Design</i>	31
2.8.3.3	<i>Material and Fabric</i>	31
2.8.3.4	<i>Acitivities performed at the spa</i>	31
2.8.3.5	<i>Merits</i>	32
2.8.3.6	<i>Conclusions</i>	32
2.8.4	Hoogland Health Hydro.....	32
2.8.4.1	<i>Activities and Facilities</i>	32
2.8.4.2	<i>Merits</i>	33
2.8.4.3	<i>Structure and Fabric</i>	33
2.8.4.4	<i>Conclusion</i>	34
2.8.5	Mount Grace Country House and Spa	34
2.8.5.1	<i>Activities performed at the spa</i>	34
2.8.5.2	<i>Merits</i>	34
2.8.5.3	<i>Conclusion</i>	35
2.8.6	Effects of color on human minds	35
Chapter 3	Research Methodology	36
3.1	Method of data collection and analysis.....	36
3.1.1	Primary Source.....	36
3.1.1.1	<i>Participatory Data Analysis</i>	36
3.1.1.2	<i>Questionnaire</i>	38

3.1.1.3	Photo recordings.....	39
3.1.1.4	Personal Observations.....	39
3.1.1.5	Case Study.....	39
3.1.2	Secondary Source.....	39
3.2	Strength of Methodology	40
3.3	Limitations of Methodology	40
Chapter 4	Findings and Discussions.....	41
4.1	Background Information.....	41
4.2	Design Considerations	41
4.2.1	Environmental Considerations.....	41
4.2.2	Architecture of existing building	42
4.2.3	Design Guidelines.....	42
4.3	The Site	42
4.3.1	Site Selection Criteria and Justification.....	42
4.3.2	Eastern region	43
4.3.2.1	Vegetation	43
4.3.2.2	Climate.....	44
4.3.2.3	Occupation.....	44
4.3.2.4	Education and Literacy.....	44
4.3.3	Demography and economy of Jumapo	45
4.3.4	Site Potential	45
4.3.5	Site Inventory.....	45
4.3.6	Existing Site Services	45
4.3.6.1	Electricity and water supply	46
4.3.7	Peripheral Studies	46
4.3.8	Climatic Conditions	47
4.3.9	Building type.....	48
4.4	Developed Brief.....	48
4.5	Conceptual Site Planning.....	48
4.5.1	Stage One.....	49
4.5.2	Stage two.....	50
4.5.3	Stage Three	52
4.5.4	Stage Four	53
4.6	Form Development	53
4.6.1	Individual Space Planning	54
4.6.1.1	Layout of Patients Accommodation	54
4.6.1.2	Layout of Workshop	54
4.6.1.3	Layout of Wellness Centre	55
4.6.1.4	Layout of Staff Accommodation	55
4.6.2	Structure and Form	55
4.6.3	Ceiling System.....	56
4.6.3.1	Fenestration	57

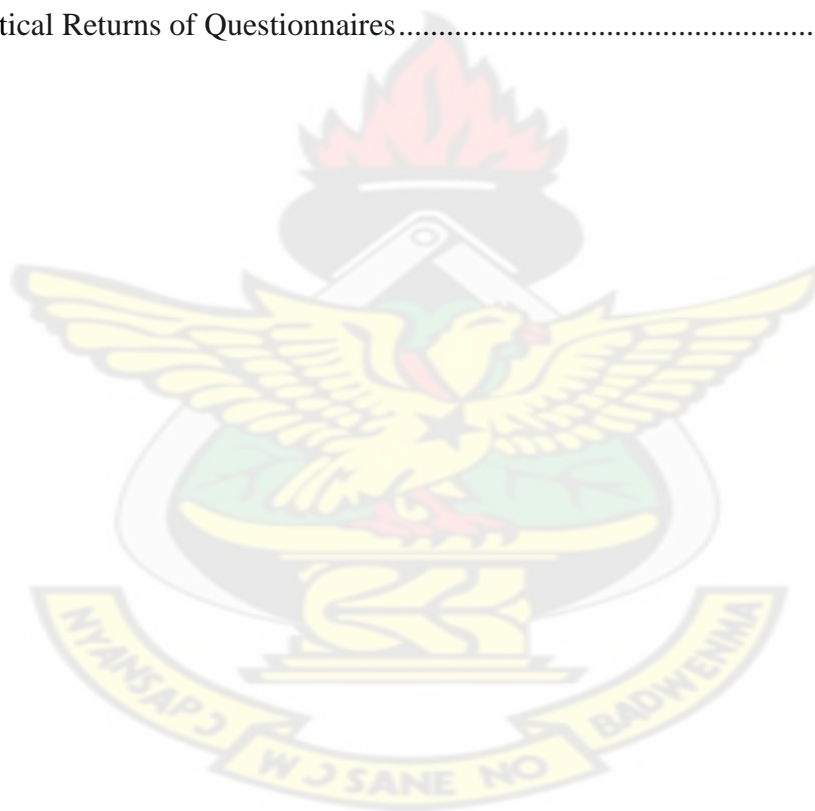
4.7	Services	57
4.7.1	Water supply	57
4.7.2	Energy	58
4.7.3	Plant room	58
4.7.4	Sewerage disposal	58
4.7.5	Surface drainage.....	59
4.7.6	Waste management	59
4.7.7	Car park provision.....	59
4.7.8	Ventilation.....	59
4.7.9	Lighting.....	59
4.7.10	Fire protection	60
4.8	Landscaping	60
4.8.1	Pesdestriam ramps	61
4.8.2	Handrails and seating.....	61
4.8.3	Street furniture	61
4.8.4	Bushfire Management.....	61
4.9	Conclusion	62
Chapter 5	Conclusions and Recommendations.....	63
5.1	Conclusions.....	63
5.2	Recommendations.....	63
5.2.1	Proposals for improved services	63
5.2.1.1	<i>Investment in Infrastructure</i>	64
5.2.1.2	<i>Training of personnel</i>	64
5.2.1.3	<i>Public education</i>	64
References.....		66
Appendix A: Estimated project cost		70
Appendix B: Questionnaire.....		81
Appendix C: Drawings		87

List of Figures

Figure 1.1: Process flow for effective treatment of mental illness	4
Figure 2.1: Shows the population trend of Ghana by age and sex from 1990 to 2020.....	7
Figure 2.2: Shoe making workshop	26
Figure 2.3: Tie and die workshop	26
Figure 2.4: Art therapy room	26
Figure 2.5: Wreath making room.....	26
Figure 2.6: Tailoring room.....	26
Figure 2.7: Exhibition room.....	26
Figure 2.8: Group therapy at centre	29
Figure 2.9: Swimming pool for hydrotherapy	29
Figure 2.10: Club house showing snooker table and table tennis board.....	29
Figure 2.11: Patients playing volley ball	29
Figure 2.12: Animals used for therapy	30
Figure 2.13: Fish pond for hydrotherapy	30
Figure 2.14: Swimming pool for hydrotherapy	33
Figure 2.15: Massaging activity at Hoogland Hydro.....	33
Figure 3.1: Participative policy process	37
Figure 4.1: Electrical cables around the site	46
Figure 4.2: Light tension cable 100m from site.....	46
Figure 4.3: Borehole located around the neighbouring residential areas.....	46
Figure 4.4: Residential facility around the site	47
Figure 4.5: Jumapo Health Centre	47
Figure 4.6: Filling station serving as a landmark to the site	47
Figure 4.7: Conceptual site planning for stage one	50
Figure 4.8: Conceptual site planning for stage two	51
Figure 4.9: Conceptual site planning for stage three	52
Figure 4.10: Conceptual site planning for stage four	53
Figure 4.11: Detail of Clay tile roof	55
Figure 4.12: Wooden floor finish.....	56
Figure 4.13: Hardwood strip ceiling.....	57

List of Tables

Table 1.1: Recovered patients at the three mental hospital in Ghana	4
Table 2.1: Statisal returns for Accra Psychiatric Hospital from Jan-Dec 2006	20
Table 2.2: Statisal returns for Pantang Hospital from Jan – Dec 2006	20
Table 2.3: Statiiscal returns on Ankaful Hospital from Jan – Dec 2006	21
Table 2.4: Drug related admissions in 2004	22
Table 2.5: Drug related admissions in 2005	22
Table 2.6: Drug related admissions in 2006	22
Table 3.1: Statistical Returns of Questionnaires	38



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CHAPTER ONE: INTRODUCTION

1.1 PREAMBLE

The overall aim of this research is to help integrate recovered mental patients from the psychiatric hospitals back into society through the use of a psychiatric rehabilitation centre. The goal of the psychiatric rehabilitation centre is to help patients develop their emotional, social, vocational and intellectual skills needed to live, learn and work in the community with the least amount of professional support. Mental health care features at two levels, the institutional care and community mental health care popularly known as community psychiatry. The institutional care takes place in psychiatric hospitals whereas the community psychiatry occurs in the community in which patients reside. Psychiatrists and nurses offer treatment at the institutional care level and community psychiatry nurses administer care at the community psychiatry level.

The psychiatric rehabilitation centre will serve as a transitional zone between the hospital and the community where patients are taught the requisite skills needed to be reintegrated into the community. The rehabilitation centre will seek to accomplish two main purposes. They are 1) to help train recovered patients in skills acquisition for gainful employment and 2) to help provide the opportunity for patients to gradually acquire socialization skills through their supervised contact with some members of the community. The idea of trying to include the public into this proposed design is to help patients learn how to live with people upon getting back into the community and also to help break down the wall of prejudice the public has concerning mental illness.

Despite popular notions of stigma, records has it that most people who come in close contact with recovered mental patients who have gone through rehabilitation successfully are always full of praise on how magnificent these patients have been transformed (Greenblatt and Simon, 1999). According to World Health Organization (2006), 80% of treated mental patients who are rehabilitated get better and fit so well into society with no traits of the person ever having experience such trauma. Discharging mental patients because they are symptom free but non functional, without rehabilitation is no longer acceptable as good management in psychiatry (Deva and Manilla, 2006). Recovered mental patients desire to participate in family life, community life and in a meaningful occupation.

It is estimated that of the 21.6 million people living in Ghana, 650,000 are suffering from a severe mental disorder and a further 2,166,000 are suffering from a moderate to mild mental disorder including disorders such as depression, phobias, bipolar disorder and schizophrenia (Ghana Health Service [GHS], 2007). Currently there are 2,250 patients on admission in the three psychiatric hospitals in Ghana; 1,200 at Accra, 500 at Pantang and 550 Ankafu (Selby, 2006). Analyzing records given at these three psychiatric hospitals, 30% of these patients have recovered but are still being kept in the hospital because the country lacks rehabilitation centres to help nurture such patients on how to live in the society without being dependant. Patients are therefore afraid to leave the hospital environment (Osei, 2007).

Governments' policy in the long term is to establish such rehabilitation facilities in all ten regions, but the reality is that there is lack of funding and inadequate number of staff (Ewusi-Mensah, 2001). Towards the achievement of this goal, about 160 community nurses have been trained and allocated to all ten regional capitals with their presence in 56 out of a 110 districts in the country (Ewusi-Mensah, 2001). Some staffs at the Accra Psychiatric Hospital have been given orientation in community work, counseling and rehabilitation so as to fit into the community development program. This work takes advantage of all the preparations the government is making in order to propose an architectural design of psychiatric rehabilitation centre that will facilitate patient's full recovery.

1.1.1 Background

Interview with the Chief Psychiatrist of the Accra Psychiatric Hospital, Dr. Akwasi Osei at the hospital revealed that there are currently three psychiatric hospitals, with bed capacity ranging from 500 at Ankafu, 500 at Pantang to 800 beds at the Accra Psychiatric Hospital. All the three mental hospitals are unfortunately located at the southern part of the country within three hours drive from one another. Mental health personnel are currently in acute short supply. There are only fourteen consultant psychiatrists, with eleven of them already retired but working under contract. All these 14 psychiatrists are mostly located down south. The country requires at least seventy psychiatrists which will be spread all over the country (Osei, 2007)

Accra Psychiatric Hospital (APH) being the first psychiatric hospital to be built has undergone major expansion in the past 100 years. The hospital currently houses about 1200 inmates of which one-third are recovered patients in the long-stay wards as a result of being abandoned by their relatives. Patients therefore find it difficult to integrate back into the community on their own (Ewusi-Mensah, 2001). Apart from the effects it has on the individual, it also poses enormous burden on the government who has to cater for these patients as long as they remain resident in these hospitals. These recovered patients as mentioned above constitute 30% of the total population of the three main psychiatric hospitals in Ghana (Osei, 1994). Government currently spends \$0.50 to cater for each patient in a day (MHP, 2006). This research therefore focuses on the design of an efficient psychiatric rehabilitation centre that will help integrate recovered patients back into society.

1.2 SCOPE

This thesis proposes a psychiatric rehabilitation centre where recovered patients are taught the requisite skills needed to facilitate their integration into society. The research intends to improve the psychiatric situation concerning recovered mental patients in Ghana. It focuses on how best to integrate these recovered mental patients back into society through the use of a rehabilitation centre to enable them have control over their lives and contribute meaningfully to economic development. The research will focus on recovered mental patients in the three main psychiatric hospitals in Ghana.

1.3 PROBLEM STATEMENT

Psychiatric treatment in Ghana for the past 100 years have been focusing more on the institutional care and has therefore neglected to some extent the community psychiatry (Asare, 2003). The high number of recovered patients still at the hospitals is as a result of the inability to rehabilitate them to integrate well into society. Patients therefore adapt to the hospital environment and hence are reluctant to move back into society (Hector, 2001). This has therefore created congestion in these psychiatric hospitals, a strain on governments' budget and most importantly deprives patients from contributing to economic development. The Ghana News Agency (2007) reported of 350 recovered patients out of the total population of 1200 who are

still in Accra Psychiatric Hospital. Every mental patient must go through these three main stages to be able to get back to normalcy (Butler, 1985). This idea is illustrated in Figure 1.1.



Figure 1.1: Process flow for effective treatment of Mental illness

The elimination of the intermediary (rehabilitation centre) serving as a transitional zone between the treatment in psychiatric hospitals and integrating into society in the process flow of treatment has contributed to the high rate of recovered patients still in the psychiatric hospitals. This therefore reduces the patient chances of reacting and observing appropriate behavior in the community (Butler, 1985). Table 1.1 shows the data compiled from the three main psychiatric hospitals on recovery rate. The table also illustrates how many of these recovered patients move out or remain in these hospitals. Research has proven that 85% of patients who passes through a rehabilitation process after recovery from mental illness are able to mingle well in society within a month of discharge (Butler, 1985).

Table 1.1: Recovered patients at the three Mental Hospitals in Ghana

	ACCRA PSYCHIATRIC HOSPITAL			PANTANG HOSPITAL			ANKAFUL HOSPITAL		
Year	TRP	REC. (IN)	REC (OUT)	TRP	REC. (IN)	REC (OUT)	TRP	REC. (IN)	REC (OUT)
2004	2447	731	1716	710	244	466	706	281	425
2005	2763	824	1939	853	249	604	790	232	558
2006	2650	795	1855	844	299	545	812	340	472

Legend

TRP – Total Recovered Patients

REC (IN) – Recovered patients still in the Hospital

REC (OUT) – Recovered patients out of the Hospital

1.4 RESEARCH OBJECTIVES

The main objective of the research is to propose a model psychiatric rehabilitation centre design to help restore patients to their roles within the family and community. The design will also engage the people around them to support this process. This will be achieved through two main functions;

1. Creating a built environment for treated mental patients to engage in community interaction, receive continuous counseling and expose patients to a well designed environment where they come in tune with nature.
2. Occupational therapy to help patients in skills acquisition which is valuable in their recovery process. (Underhill, 2006)

1.5 JUSTIFICATION

It is evident that the number of recovered patients at the psychiatric hospitals in Ghana constitutes about 30% of the total patients' population (Osei, 2007). These recovered patients should therefore be given the chance to live a fulfilled life, contribute economically and socially to their communities and also relieve the government of the burden of catering for them. The role of the family, employment, hope, self-efficacy, alleviation of stigma and poverty reduction is critical for recovery and reintegration. Recovery and reintegration must flow concurrently (Zanker, 2006). To help reintegrate patients into the community is to have them go through a rehabilitation process before entering the community.

1.6 RESEARCH METHOD

Data will be gathered through both the primary and secondary sources. An innovative approach to research called Participatory Data Analysis will be used. People in the psychiatry field and randomly selected members of the community will be interviewed and questionnaires also issued out. The secondary source will comprise of literature review of publications including books, journals, conference papers and magazines from both the library and the internet.

1.7 RESEARCH CONTRIBUTION

An architectural design model of psychiatric rehabilitation centre with the focus on reintegrating mental patients into society is proposed. Patients will consequently acquire skills and

furthermore contribute to economic development. It will also help reduce stigmatization associated with mental illness as a result of the education people will receive while playing a role in the recovery process.

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CHAPTER TWO: LITERATURE REVIEW

This chapter reviews literature of the population of Ghana, mental health profiles in Ghana, the causes of mental illness, the stigma associated with the illness and the recovery process of mental illness. The chapter also analysis what rehabilitation means to the mentally ill and reviews literature on both local and foreign case studies of rehabilitation centres.

2.1 POPULATION TRENDS IN GHANA

Ghana is one of the most populous countries in West Africa, second only to Nigeria. Since achieving political independence in 1957, its population has more than tripled in size from 6 million to 21 million in 2006 and is expected to increase to 27 million by 2020. The rapid growth of Ghana's population is an outcome of high fertility and declining mortality rate. The combination of a high fertility rate and the declining mortality rate is also the cause of the young age structure of the Ghanaian population with 43% under 15 years. However, Ghana's age structure is changing, a consequence of falling fertility as illustrated in Figure 2.1 below. The most important changes are the declining proportion of children and increasing share of the working age group; 2007 and 2020 the number of children under 15 (now nearly 8 million) will remain virtually constant while the 15 to 64 year age group will nearly double from 9 million to 18 million (Adlakha, 2006).

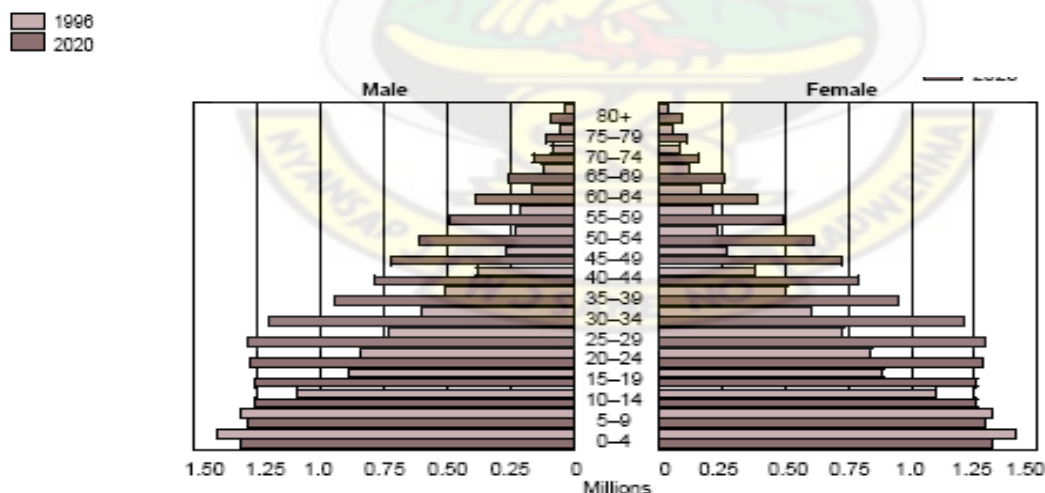


Figure 2.1: Population of Ghana by Age and Sex from 1996 to 2020. (Source: US Bureau of the Census, IPC International Database, 1996).

Researchers supported by the National Institute of Mental Health (NIMH) have found that half of all lifetime cases of mental illness begin by age 14 and three quarters at the age of 24 (NIMH, 2006). The study called the National Comorbidity Survey Replication (NCS-R) revealed an important recognition that mental disorders affect mostly young people in every country which constitutes the highest number of people in the population trend of Ghana. For example, anxiety disorders often begin in late childhood, mood disorders in late adolescence and substance abuse in the early 20's (Edman and Koon, 2000). Unlike heart disease or most cancers, young people with mental disorders suffer disability when they are in the prime of life, when they would normally be most productive. The risk of mental disorders is substantially lower among people who have matured out of the high-risk age range. Prevalence increases from the youngest group (age 18-29) to the next-oldest age group (age 30-44) and then declines, sometimes substantially, in the oldest group (age 60 +) (Adlakha, 2006). Females have higher rates of mood and anxiety disorders. Males have higher rates of substance use disorders and impulse disorders (NIMH, 2006).

2.2 PSYCHIATRIC CARE IN GHANA

This section discusses the history and current trend of psychiatry in Ghana. It also discusses the various attempts made to treat mental health spiritually.

2.2.1 History of Psychiatric care in Ghana

In the early colonial era (19th century), patients suffering from mental illness in the Gold Coast (now Ghana) were usually kept in prison (Mental Health Profile [MHP], 2006). Prior to this period, psychiatric patients were found roaming in towns, villages and bushes with some locked up either in their homes or restrained by native doctors. In 1888, the colonial government passed a Legislative instrument (The Lunatic Asylum Ordinance) signed by Governor Sir Edward Griffith to establish a lunatic asylum in a vacated high court building in Accra (Ewusi-Mensah, 2001). It was not until 1904, that a purposeful psychiatric hospital was built called Accra Psychiatric Hospital (APH). The hospital was officially commissioned in 1906 initially to accommodate 200 patients. By the late 1940's with psychiatric treatment primarily in the form of custodial care, there was soon to be overcrowding. The first psychiatrist south of the Sahara Dr. E.F.B. Foster, a native of Gambia was posted from the colonial office in London to the Accra

psychiatric hospital in 1951. He transformed the Asylum into a hospital in conformity with the world wide changes at the time. He initiated the training of doctors and nurses who became trainers of trainees. He also arranged for a number of doctors to specialize in the field of psychiatry abroad (MHP, 2006). APH has undergone major expansion in its 100 years of existence and currently have 800 beds. There have been extensive changes in the hospital buildings; the staff training and recruitment were expanded. Other reforms introduced were the removal of chains from patients and discouraging isolation (Adlakha, 2006). APH during this period was the only established Psychiatric hospital in West Africa. A second psychiatric hospital called Ankafu Psychiatric Hospital was built in 1965 and later followed by Pantang Hospital in 1975.

The appointment of Doctor Asare, a UK trained psychiatrist, coupled with interest from the Head of State in 1983, resulted in the setting up of a committee to advise the Government on improving psychiatric services in the country and especially in the Accra psychiatric hospital (MHP, 2006). This was followed by the creation of the Mental Health Unit (MHU) within the Ministry of Health (Ewusi-Mensah, 2001). It heralded a new era for psychiatry. Training of mental health nurses was enhanced in the early 1990's. Public awareness of mental health issues was intensified. A general drive to reduce the population of the Accra psychiatric hospital from 2,000 to 1,000 was achieved (MHP, 2006).

2.2.2 Current Trend of Psychiatric Care in Ghana

Mental health care in Ghana is concentrated in the southern part of the country but psychiatric service in the north is almost non-existent (Ewusi-Mensah, 2001). There are currently three (3) main psychiatric hospitals in the country namely;

- Accra Psychiatric Hospital built in 1904 with a capacity for 800 beds.
- Ankafu Psychiatric Hospital built in 1965 in the central region of Ghana. It was initiated by Dr Kwame Nkrumah and has a bed capacity of 500.
- Pantang Hospital was commissioned in 1975 to decongest the Accra Psychiatric Hospital and has 500 beds.

Beds have also been created in some regional hospitals such as Komfo Anokye Teaching Hospital in Ashanti region (10 beds), Regional General Hospital in Ho (10 beds), Upper West regional hospital in Wa (10 beds) and Regional Hospital in the Brong Ahafo region (22 beds). These psychiatric hospitals in Ghana perform the following general functions even though there may be some slight differences in the activities performed at the individual hospitals. These activities include;

- Assessment, treatment and rehabilitation facilities for long stay patients.
- Provision of both in and out-patient facilities.
- Counseling undertaking by the clinical psychologists.
- Nursing training schools at Ankafu and Pantang hospitals.

Admission into the psychiatric hospitals is free to all patients. Medication and test are subsidized but free to those declared as paupers. There are currently four (4) psychiatrists working in the public sector with none in the northern part of Ghana. Patients therefore have to travel from the north to the south in order to consult a psychiatrist. Accessibility to psychiatric service is difficult and uneven since all the three main psychiatric hospitals are located in the southern part of the country. It is for this reason that only about 5% of the mental patients from the northern part of Ghana are reported to seek help in the main psychiatric hospitals (Osei, 2007). Most mental patients at the various psychiatric hospitals have been abandoned by their families and are left destitute and homeless (Ewusi-Mensah, 2001). Some relatives also seek spiritual help instead of institutional care because of the belief attached to this illness.

2.2.3 Spiritual Treatment

Many people in Ghana believe that mental disorder is caused by demonic possession, specifically witches or as a punishment by God or the gods they worship for a sin committed, disobedience or a curse (Csordas and Lewton, 2001). According to a female patient at the International Jesus Church, Ada, in the Greater Accra Region, her situation started all of a sudden, when she had a terrible dream in which she saw a tied cow. She woke up from her sleep unable to do anything. According to her, she started vomiting and behaving strangely. She was taken to the Pantang Hospital, but things did not get better. She was later sent to a prophet for deliverance, and was told she was the tied cow she saw in her dream and for that matter had to be delivered (Selby, 2006).

After an in-depth research by the CHRI on prayer camps and their activities, it was discovered in the Volta Region that prayer camps, like the Pentecost Prayer Camp, Bethel Deliverance Mission International and Divine Healers' Prayer Camp, provided clean and helpful environments for people seeking help. They boast of constructed shelters for the inmates, as well as other basic amenities like water and toilet facilities. The Central Region was no exception. Camps like the Christ Faith Prayer Camp at Agona Dunkwa, Apostolic Prayer Camp at Agona Kwanyarko, and Edumfa Prayer Camp seemed well organized. Although electricity was available, water seemed to be a luxury, as inmates or their relatives have to take on the responsibility of fetching water for their personal use (Underhill et al., 2003).

However, according to CHRI, the two regions have something strange in common. The common feature of all the camps was the existence of chains or prison like rooms, used more often as a means of carrying out treatment, than as a means of restraining patients. Inmates were either chained to trees, sometimes overnight, or locked in rooms under the pretext of driving out the evil spirits in them and inmates are sometimes beaten. According to some pastors, by beating the patients, the evil spirits that had taken control are forced to leave, forgetting that, the biblical word says "we wrestle not against flesh and blood, but against principalities and the rulers of darkness." This form of abuse is inflicted on adults, irrespective of gender. Other methods used for healing at the camps were longer prayer sessions, and fasting by inmates or a member of their family (Underhill, 2006).

According to a lady, whose name has been withheld, she was a member of a prayer camp in Cape Coast and in order for one to get healed, the person had to go through a period of fasting for three consecutive days, without food or water. They do this kind of fasting once a month. In Edumfa Prayer Camp, it was noted that inmates were made to run around the temple, as part of the healing process, before beginning prayers. The use of herbal preparations and concoctions, as part of the treatment process, was another feature of the Central Regional camp (Underhill, 2006)

2.2.3.1 Reasons why people still prefer prayer camps

According to the CHRI's research, people interviewed at some prayer camps, stated lack of funds and socio-cultural influence, as some of the main factors causing them to prefer prayer camps to hospitals (Selby, 2006). Financially, caring for the mentally-ill can be challenging, particularly in

parts of the world with poor or virtually non-existent healthcare systems. In the quest of a family wanting to bring the mental patient to normality, they end up using all their resources, time and energy, and as a result, cripples them financially. On the part of socio-cultural factors, people feel ashamed and uncomfortable due to stigmatization (Edman and Koon, 2000). This stems from treatment meted out by community members, neighbors, employers, and in some cases family members. It was made known that once a person was recognized to have suffered a mental ailment, the stigma is usually transferred to the whole family, since they believed that the illness is hereditary. Due to the above reasons, most mental patients and their families do not disclose their predicament to the community nor seek help from psychiatric hospitals but rather prefer spiritual treatment (Csordas and Lewton, 2001).

2.3 CAUSES OF MENTAL ILLNESS

Mental illness is a state of being, in which an individual has difficulty in handling situations and feelings of an everyday nature (Regier et al., 1999). In certain instances, conditions are characterized by impairment of intellectual functions, the experience of shallow and unstable emotions and difficulty in adapting to ones environment (Bayes, 2000). Mental illness is a term that refers to all the different types of mental disorders, including disorders of thought, mood or behavior. To be classified as mental illness, the condition must cause distress and result in a reduced ability to function psychologically, socially, occupationally or interpersonally (Regier et al., 1999).

This means that someone suffering from mental illness may have trouble coping with emotions, stress and anger, for instance, the trouble of handling such things as daily activities, family responsibilities, relationships, or work and school responsibilities. This presupposes that a person can experience more than one type of mental illness at the same time. Although the exact cause of most mental illnesses is not known, it is becoming clear through research that many of these conditions are caused by a combination of biological, psychological, and environmental factors (Butler, 1985).

2.3.1 Biological Factors responsible for Mental Illness

Some mental illnesses have been linked to an abnormal balance of special chemicals in the brain called neurotransmitters. Neurotransmitters help nerve cells in the brain to communicate with

each other (Edam and Koon, 2000). If these chemicals are out of balance or are not working properly, messages may not make it through the brain correctly, leading to symptoms of mental illness. Examples of the symptoms are; confused thinking; long-lasting sadness or irritability; extreme highs and lows in mood; excessive fear, worry, or anxiety; social withdrawal; dramatic changes in eating or sleeping habits; strong feelings of anger; delusions or hallucinations (seeing or hearing things that are not really there); increasing inability to cope with daily problems and activities; thoughts of suicide; denial of obvious problems; many unexplained physical problems; abuse of drugs and/or alcohol. In addition, defects in or injury to certain parts of the brain has also been linked to some mental conditions (Regier et al., 1999). Other biological factors that may be involved in the development of mental illness include: genetics, infections, brain defects and potential damage.

2.3.1.1 Genetics (heredity): Many mental illnesses run in families, suggesting that people who have a family member with mental illness are more likely to develop mental illness. Susceptibility is passed on in families through genes. Experts believe many mental illnesses are linked to abnormalities in many genes and not just one. A person may inherit a susceptibility to a mental illness and may not necessarily develop the illness. Mental illness itself occurs from the interaction of multiple genes and other factors such as stress, abuse, or a traumatic event which can influence or trigger an illness in a person who has an inherited susceptibility to it (Regier et al., 1999).

2.3.1.2 Infections: Certain infections have been linked to brain damage and the development of mental illness or the worsening of its symptoms. For example, a condition known as pediatric autoimmune neuropsychiatric disorder (PANDA) associated with the Streptococcus bacteria has been linked to the development of obsessive-compulsive disorder and other mental illnesses in children (Regier et al., 1999).

2.3.1.3 Brain defects or injury: Defects in or injury to certain areas of the brain can also cause mental illnesses (Argyle, 1970).

2.3.1.4 Prenatal damage: Some evidence suggests that a disruption of early fetal brain development or trauma that occurs at the time of birth, for example the loss of oxygen to the

brain may be a factor in the development of certain conditions, such as autism (Regier et al., 1999).

2.3.1.5 Substance abuse: Long-term substance abuse, in particular, has been linked to anxiety, depression, and paranoia (Regier et al., 1999).

2.3.1.6 Other factors: Poor nutrition and exposure to toxins, such as lead, may play a role in the development of mental illnesses (Reiger et al., 1999).

2.3.2 Psychological Factors responsible for mental illness

Psychological factors which contribute to mental illness include 1) severe physical trauma suffered as a child such as emotional, physical or sexual abuse 2) an important early loss such as the loss of a parent, 3) neglects when one feels abandoned or disregarded 4) inability to relate to others (Madison, 2003).

2.3.3 Social Factors responsible for Mental Illness.

Certain stressors can trigger the illness in a person who is susceptible to mental illness. These stressors include: death or divorce, a dysfunctional family life, living in poverty, feelings of inadequacy, low self-esteem, anxiety, anger, or loneliness, changing jobs or schools, social or cultural expectations (for example, a society that associates beauty with thinness can be a factor in the development of eating disorders) and substance abuse by the person or the person's parents (Regier et al., 1999).

Mental illness does not normally start out of the blue but usually develops slowly (Morgan and Cheadle, 1981). However, some people may suddenly get mental illness, such as the development of psychotic illness (Argyle, 1970). Epidemiological data suggest that about one in four people experience mental health problems (Regier et al., 1999).

2.4 STIGMA

Stigma is something about a person that causes him/her to have a deeply compromised social standing, a mark of shame or discredit. Many people with serious mental disorder appear to be different because of their symptoms or the side effects of their medication Other people may

notice the differences, fail to understand them, feel uncomfortable around those affected and act in a negative way towards them. This exacerbates both symptoms and disability in persons with mental disorders. People with mental disorders are often thought to be lazy, unintelligent, worthless, stupid, unsafe to be with, violent, out of control, always in need of supervision, possessed by demons, recipient of divine punishment, unpredictable, unreliable, irresponsible, untreatable, without conscience, incompetent to marry and raise children, unable to work, increasingly unwell throughout life and in need of hospitalization (WHO, 2001).

2.4.1 Effects of stigma

- *Unwillingness of person with mental disorders to seek help.* Due to the stigma associated with this illness, patients are reluctant to seek medical help and as a result about 65% of people with mental illness refrain from seeking medical help (Davis et al., 2003).
- *Isolation and difficulty in making friends.* As soon as a person experiences mental illness, he/she is perceived as a dangerous person capable of causing harm. Therefore, 'normal people' segregate themselves from them with the fear of getting hurt.
- *Damage to self esteem and self-confidence.* Patients feel so dejected that they lose their sense of worth and poise. Losing their sense of worth makes it difficult for them to mingle with people even after recovery and even engage in any meaningful thing (Regier et al., 1999).
- *Families are more socially isolated and have increased levels of stress.* Families of the patients are looked down upon and no family wants to have anything to do with them. They become social out-cast and the family name is demeaned (Regier et al, 1999).
- Fewer resources are provided for mental health than for other areas of health. Since there is a social belief that people do not really recover from this illness, government is reluctant to input more resources into this sector. Just about 5% of the government budget is allocated to mental health (Laugharine and Burns, 1999).

2.4.2 Strategies to combat stigma

Below are proposed strategies which when adopted will help eliminate stigmatization in the society.

1. *Community education of mental disorders.* Awareness should be created on the causes of the illness, prevention of the illness, what to be done in the case of mental illness and a reassurance that the illness is curable. Psycho-education must be organized for consumers and families on how to live with persons who have or have once suffered from mental disorders. Such people need special counseling (psychotherapy), occupational training, abundant love and care (Davis et al., 2003).
2. *Improvement of mental health services (quality, access, deinstitutionalization, community care).* Mental health facilities should be improved, a lot more psychiatrists be trained and better conditions of service offered to health workers in this sector.
3. *Legislation on the rights of persons with mental disorders.* It will be propelled when the Mental Health Act is passed (MHP, 2006).
4. Education of persons working in the mass media, aimed at changing misconceptions about mental disorders. People in the media should be educated on how to handle cases associated with mental patients especially when reporting on them to prevent the public from copying from what they see and hear (Davis et al., 2003).
5. Development of community care and social integration centres for persons with mental disorder or has once suffered from mental illness (Davis et al., 2003).

2.5 RECOVERY FROM MENTAL ILLNESS

Most people in Ghana still believe that when a person is labeled mentally ill, the person can never fully recover. Even most rehabilitation professionals believe that mental illness is a permanent condition (Laugharine and Burns, 1999). It is believed that fear is a large factor in perpetuating the myth of no recovery. Research carried out at the National Empowerment Centre has shown that people can recover fully from even the most severe forms of mental illness. In-depth interview of people diagnosed with schizophrenia have shown that these people are capable of regaining significant role in society and of running their own lives. Though they have recovered from their mental illness they like everyone else, continue to heal emotionally. In most cases, they no longer need medication and use holistic health, peers and family continue to support their healing. These workers have shown that over a 20 – 30 year period a majority of people recover from even the most severe forms of mental illness. According to the World Health Organization (WHO), the rate of recovery from severe mental illness is much better in the

third world countries than in western industrialized countries (Fisher, 2005). This myth will not continue if people labeled with mental illness fully recover and no longer need medication.

2.5.1 Strategies to recovery

There are four main strategies of recovery in mental illness. These are, hope, empowerment, self responsibility and establishment of a meaningful life.

2.5.1.1 *Hope*

Recovery provides the essential and motivating message of a better future that people can and do overcome the barriers and obstacles that confront them. Hope is internalized but can be fostered by peers, families, friends and providers. Hope is the catalyst of the recovery process. Mental health recovery not only benefits individuals with mental health disabilities by focusing on their abilities to live, work, learn, and fully participate in our society, but also enriches the texture of society (Fisher, 2005).

2.5.1.2 *Empowerment*

Patients have the authority to choose from a range of options and to participate in all decisions including the allocation of resources that will affect their lives, and are educated and supported in so doing. They have the ability to join with other patients to collectively and effectively speak for themselves about their needs, wants, desires, and aspirations. Through empowerment, an individual gains control of his or her own destiny and influences the organizational and societal structures in his or her life (Fisher, 2005).

2.5.1.3 *Self responsibility*

Patients have personal responsibilities for their own self-care and journeys of recovery. Taking steps towards their goals may require great courage. Patients must strive to understand and give meaning to their experiences and identify coping strategies and healing processes to promote their own wellness (Fisher, 2005).

2.5.1.4 Establishment of a meaningful role in life

Patients lead, control, exercise choice over, and determine their own path of recovery by optimizing autonomy, independence, and control of resources to achieve a self-determined life. By definition, the recovery process must be self-directed by the individual, who defines his or her own life goals and designs a unique path towards those goals (Fisher, 2005).

2.6 PSYCHIATRIC HEALTH SERVICES IN GHANA

There are primary psychiatric services in health centers and health posts, usually run by a Community Psychiatric Nurses with support from a district or regional hospital (MHP, 2006). Patients with serious psychiatric illness are normally transferred to the psychiatric hospitals, two in Accra and one in Cape Coast. The hospitals also provide teaching and research facilities to the medical schools. There are no special services for old age psychiatry (forensic psychiatry) and child psychiatry. A couple of private establishments provide rehabilitation and training for learning disability. Admission to the hospital is free to all patients, medication and tests are subsidized but free to those declared as paupers (Osei, 2007).

2.6.1 Length of stay in Psychiatric Hospital

When a patient first enters the admission ward of a psychiatric hospital, he receives attention from medical personnel. A Psychiatrist interviews and give him a physical examination, nurses attends to his needs and comforts, laboratory technicians take blood samples and the patient is also taken to the x-ray department (Hector, 2001). Within a span of 6-8 weeks after treatment, many patients may be expected to have recovered to a level of health sufficient to justify their discharge from hospital and return to their own home (Fisher, 2005). Patients who do not respond favorably to the available treatment may eventually be transferred to the long-stay wards. Rehabilitation areas require a flow of movement of patients in and out of such wards. The only way to achieve this flow is to be able to balance admissions with discharges (Laugharine and Burns, 1999). Once a patients gets into the long-stay ward, his situation changes. Patient no longer receives attention and treatment from his therapist as he previously use to. Patient receives passive treatment which involves taking in drugs to contain problems rather than reduce or extinguish them (Butler, 1985). Patients in long-stay wards are most of the time termed 'failures'. Failure follows them in hospital and if they do not improve with treatment, their

failure may be regarded as complete when they enter long-stay ward (Fisher, 2005). There are a group of patients whose chances of living in the community are 'poor' but who could, with some form of behavioral treatment, become more independent of the nursing and have a better quality of life (Argyle, 1970).

2.6.2 Admissions, discharges and deaths in the three main Psychiatric Hospitals

Tables 2.1 – 2.3 illustrate the 2006 admission and discharge in the three main psychiatric hospitals. Analyzing the data in Tables 2.1 - 2.3 reveals that on the average 70% of the patients that are admitted in the hospital during the course of the year are discharged by the end of the same year. It was gathered from the interview of Dr. Osei, the chief Psychiatrist that, about 60% out of these discharged patients do not have any form of skills and therefore cannot engage in any meaningful trade or work when they get back into the community. It is for this reason that the establishment of this proposed facility (rehabilitation centre) is deemed very important. This is because these recovered inmates can be trained in skill acquisition to be able to contribute to the socio-economic development of the country.

Tables 2.1 - 2.3 show that people in age range 5-60 years are more susceptible to mental illness. Mental illness is higher in the age range of 15-49 years, the adult age of the population. More males are admitted than females in these psychiatric hospitals (Admission record collated from the three main Psychiatric Hospitals in Ghana). This is due to the following factors;

- Females are over represented at spiritual and healing centers than males.
- Aggressive behavior which is more prevalent among male patients is one of the major reasons for admission.

Table 2.1: Statistical Returns of Accra Psychiatric Hospital from January – December 2006
(Data Source: MHP, 2006)

	ADMISSION		DISCHARGES		DEATHS	
AGE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
< 1YR	0	0	0	0	0	0
1-4 YRS	0	0	0	0	0	0
5-14 YRS	7	6	6	4	0	0
15-45 YRS	1918	1179	1291	931	19	0
45-59 YRS	252	212	152	156	7	0
> 60 YRS	63	93	41	69	11	0
SUB TOTAL	2240	1490	1490	1160	37	0
GRAND TOTAL	3730		2650		64	

Table 2.2: Statistical Returns of Pantang Hospital from January – December 2006
(Data Source: MHP, 2006)

	ADMISSION		DISCHARGES		DEATHS	
AGE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
< 1YR	0	0	0	0	0	0
1-4 YRS	0	0	0	0	0	0
5-14 YRS	6	2	1	0	0	0
15-45 YRS	1944	1314	1224	810	53	34
45-59 YRS	213	238	185	163	22	18
> 60 YRS	70	59	37	27	18	10
SUB TOTAL	2238	1613	1447	1000	93	62
GRAND TOTAL	3851		2447		155	

Table 2.3: Statistical Returns of Ankaful Hospital from January – December 2006

(Data Source: MHP, 2006)

	ADMISSION		DISCHARGES		DEATHS	
AGE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
< 1YR	0	0	0	0	0	0
1-4 YRS	0	0	0	0	0	0
5-14 YRS	1	3	0	3	0	1
15-45 YRS	590	357	376	243	6	3
45-59 YRS	48	52	40	35	5	2
> 60 YRS	8	6	8	6	2	1
SUB TOTAL	647	418	424	286	13	7
GRAND TOTAL	1065		710		20	

The top ten cases for admission to the three main Psychiatric Hospitals in Ghana (MHP, 2006) are Schizophrenia, Substance Abuse, Depression, Hypomania, Acute Organic Brain Syndrome, Manic Depressive Psychosis, Schizo –Affective Psychosis, Alcohol Dependency Syndrome, Epilepsy and Dementia.

It is evident from the three years data on substance abuse shown in Figures 2.4 – 2.6, that there is yearly increase in the total number of admissions with cannabis admissions being the highest each year. There are more men using drugs than women (MHP, 2006). This is cultural as Ghanaians frown on female drug users. The multiple drugs used include cannabis, cocaine, heroin and alcohol.

Table 2.4: Drug related admission common in 2004 (Data Source: MHP, 2006)

DRUGS	MALE	FEMALE	TOTAL
COCAINE	2	0	2
HERION	6	1	7
CANNABIS	348	6	354
ALCOHOL	112	13	125
TOTAL ADMMISION	468	20	488

Table 2.5: Drug related admission common in 2005 (Data Source: MHP, 2006)

DRUGS	MALE	FEMALE	TOTAL
COCAINE	2	1	3
HERION	7	1	8
CANNABIS	368	3	371
ALCOHOL	130	10	140
TOTAL ADMMISION	507	15	522

Table 2.6: Drug related admission common in 2006 (Data Source: MHP, 2006)

DRUGS	MALE	FEMALE	TOTAL
COCAINE	3	1	4
HERION	7	0	7
CANNABIS	483	2	485
ALCOHOL	152	22	174
TOTAL ADMMISION	645	25	670

2.7 REHABILITATION

Many people understand rehabilitation to mean the activities which prepare patients to take their place in the community after medical treatment has been completed (Davis et al., 2003). On the other hand, some people perceive rehabilitation as a single continuing process and do not make any distinction between medical treatments and the training activities which follow (Greenblatt and Simon, 1999). They declare that rehabilitation starts the very moment a patient enters hospital and may continue even after he has been discharged from hospital (Hector, 2001).

Example of this continuous process can be seen in community nursing. Nurses may be engaged in regular visits to a patient's home long after his discharge from the hospital. The purpose of the visits by the community nurse is to administer to a patient his regular medication, offer counseling, monitor behavior and report all observations to the appropriate member of the team.

Rehabilitation is a building activity which restores a person's physical and mental capacities and improve the quality of his or her life to a level which is as near as possible to that which existed prior to his illness (Greenblatt and Simon, 1999). The way to achieve this is called *therapy*, which means treatment to heal. The aim is to help 'pull the patient together' with the aim of restoring them back to health. Rehabilitation involves hope and confidence in the treatment. This presupposes that the purpose of rehabilitation involves instilling or the restitution of positive skills or attitudes in a person to provide him/her with more contributive and fulfilling role in society (Butler, 1985).

2.7.1 The significant of SPA in a Rehabilitation Centre

Spas have certainly played an important role throughout the centuries not only in recreation but also in restoring physical and mental health. Spa treatments are meant to cleanse body and soul. It is obvious that, through eliminating toxins in the skin, sloughing away dead cells, and enriching the epidermis with moisture, vitamins, and antioxidants, the body feels rejuvenated and more youthful (Casting, 1999).

2.7.1.1 *Relaxation*

Relaxation is essential for a healthy mind. For instance, spa treatments, like a good yoga session, will slow down your thoughts so that your mind can rest. A calm atmosphere, aromatherapy,

soothing sounds, and the practiced touch of the spa therapist can all lull body and mind into a state of much-needed relaxation (Casting, 1999).

2.7.1.2 Pampering

We all need to do something nice for ourselves. It is even better when someone else does it for us. Whether you are getting a simple facial or a whole body wrap, having someone attend to your health, beauty, and well-being is good for the mind and soul (Casting, 1999).

2.7.1.3 Cleansing

Cleansing the body of toxins and removing dead skin cells can also have a cleansing spiritual effect. When your body is clean, your mind is more ready to take on new challenges. Often, people who have had body wraps feel "lighter" as though a weight has been lifted off of them (Casting, 1999). Psychologically speaking, the mind-body connection is integral to the spa experience (Davis et al., 2003).

2.7.1.4 Beauty

Spa treatments not only make us feel better, they make us more beautiful. Radiant skin and a relaxed appearance give anyone a more youthful, pleasant appearance. The work weeks' stress has dissolved away. And when we look beautiful, we feel beautiful. Feeling beautiful is healthy: it boosts confidence, makes us more energetic lovers, and makes us more outgoing. A Spa in a rehabilitation facility is therefore essential for a healthy mind. Spa treatment will help calm the nerves and make one feels cleanse and ready to take the challenge life brings.

2.8 CASE STUDIES ON REHABILITATION CENTRES AND HEALTH SPA

Five case studies were conducted on selected rehabilitation centers for the mentally ill and a study of a health spa. These facilities include Kumasi Cheshire Home in Ghana, Information Rehabilitation and Research Centre in India, Holy Trinity Spa and Health Farm in Ghana, Hoogland Health Hydro in South Africa and Mount Grace Country House and Spa in South Africa. The following were studied on each of the facilities; layout of the site, the material and fabric employed, structure and form of the facility and the planning methodologies and procedures to be applied in implementing the new development.

2.8.1 Kumasi Cheshire Home

The Catholic Archdioceses of Kumasi having seen the deplorable conditions and lack of proper care for the mentally ill in and around Kumasi established the Kumasi Cheshire Home in 1982 (Mensah, 1995). Drug abuse and trafficking of psycho-active drugs also contributed to the need for the establishment of the Home to help restore patients back to normalcy. Some individuals and religious groups, touched by this situation as indicated above joined hands with the Catholic Archdioceses of Kumasi in this noble course. The Kumasi Cheshire Home houses 50 patients for an average length of stay of 14 months offering physiotherapy and occupational therapy. Referrals are directly from relatives, from pastors or from hospitals. All patients learn a trade before they leave and are also monitored by outreach worker for a period of three years after discharge (Mensah, 1995).

2.8.1.1 *Aims and Objectives*

Kumasi Cheshire Home was established to:

1. be a non-profit making organization for the well-being of people with mental disorders.
2. provide a home for the rehabilitation of those suffering from psychiatric disorders.
3. liaise and co-operate with government and non-governmental organizations with similar objectives.
4. provide facilities for public education on mental health services delivery.
5. train mentally recovered patients in skills acquisition.

Opportunity is provided for each of the patients to attain his/her fullest potential. The above presupposes the participation of the mentally ill in community services to the extent appropriate and practicable for economic development (Mensah, 1995).

2.8.1.2 *The Purpose of studying Kumasi Cheshire Home*

This research on Kumasi Cheshire Home was to study how efficient the facility has been over the years. This study was also conducted in order to know the kind of training received at the centre and how efficient these trainings have been over the years. Examples of such training are wreath making, shoe making, tailoring, tie and die making, sheep rearing and farming as shown in Figures 2.2 – 2.7.



Figure 2.2: Shoemaking workshop



Figure 2.3: Tie and die workshop



Figure 2.4: Art therapy room



Figure 2.5: Wreath making room



Figure 2.6: Tailoring room



Figure 2.7: Exhibition room

2.8.1.3 Conclusion

The study underlines the importance of combining therapy and skill training. Training of mental recovered patients helps develop their minds and enables them acquire new skills. Patients who

go through training are able to recover at a very fast pace than those who do not (Osei, 2007). This case study brought to bare the kind of training suitable for mental patients. The training include wreath making, tie and die making, dressmaking and shoemaking. The layout of the home was also studied to influence the design of the proposal.

2.8.2 Information Rehabilitation and Research Centre in Kushivali, India

2.8.2.1 *Background Information*

This facility is a rehabilitation centre for the mentally ill as well as a research centre which is located at Kushivali about 25km away from Mumbai. The rehabilitation is situated at the foothill of the picturesque Haji Malang Mountains range of the Western Ghats. The centre caters for only 25 patients at a time (so that each gets individual attention) and is spread over 60,000 square feet of land. The treatment program comprises of 3 distinct phases. These are motivation, detoxification and rehabilitation. The treatment program is a holistic one and helps the chemically dependant to better all four places of him/herself. These are physical, mental, social and spiritual. Rehabilitation last for 4 – 9 months. Since the rehabilitation deals with 25 patients at a time, the treatment is highly personalized and has a success rate of over 82% (Meta, 2007)

2.8.2.2 *Activities Performed at the information Rehabilitation and Research Centre*

Activities performed at the centre include a) counseling b) addiction management c) stress management and d) physiotherapy.

a) Counseling

There are counselors who supervise or offer advice as to a decision or course of action for the patients. Patients are guided by a trained social worker or religious leader. Such guidance can be helpful for various anxiety disorders, but acute or chronic cases typically require a psychiatrist and/or psychologist (Meta, 2007).

b) Addiction Management

Addiction can be simply described as a compulsive or obsessive relationship to a substance or behavior (Butler, 1985). Addiction is caused by a feeling of emptiness, incompleteness, or a low self-esteem (Argyle, 1970). Many confuse their triggers with the cause of the addiction. Triggers simply set up the emotional circumstance for the obsessive behavior; they do not cause the behavior (Butler, 1985). It is popular to blame circumstances outside oneself for an

addiction, like genes, poverty, and society. The problem with that kind of thinking is that it defies solution and gives addicts an excuse to continue. The good news is, because the problem is within us, we can get help, and take part in the solution. This does not mean that we are at fault for our addiction, but we are responsible to seek recovery and clean up the messes our addictions cause. Patients are helped by qualified psychiatrist and counselor on how to manage addiction in this facility (Meta, 2007).

c) Stress Management

Stress management include a set of techniques used to help an individual cope more effectively with difficult situations in order to feel better emotionally, improve behavioral skills, and often to enhance feelings of control (Davis et al., 2003). Stress can be managed through massages, hydrotherapy and even art therapy (Meta, 2007).

d) Physiotherapy

Physiotherapy begins with an assessment of the patient's condition. This assessment typically includes a medical history review and a physical examination. Often, the medical history review is considered a subjective examination, whereas the physical examination is considered objective (Madison, 2003). Both elements are important to successfully examining and treating the patients. The assessment stage may, in some cases, involve diagnostic tests to better evaluate the patient's condition and develop an effective treatment plan (Meta, 2007).

2.8.2.3 Amenities

An area shown in Figure 2.8 has been allocated at the centre of the facility to serve as a group therapy meeting area where patients meet and discuss their progress level, worries and fear. Swimming pool shown in Figure 2.9, rock garden and still water have been provided for hydrotherapy. There is a provision of a club house at the centre. In the club house is a full size snooker table and pool table as shown in Figure 2.10. Figure 2.11 also shows a volley ball court where patients engage in outdoor recreation. Patients engage in these activities for fun and to relax their mind. There is also the presence of animals such as ducks and chickens shown in Figures 2.12 & 2.13 believe to facilitate the healing process of the mind.



Figure 2.8: Group therapy at centre
(Meta, 2007)



Figure 2.9: Swimming pool for hydrotherapy
(Meta, 2007)



Figure 2.10: Club house with a snooker table
and a table tennis board (Meta, 2007)



Figure 2.11: Patients playing Volley ball
(Meta, 2007)



Figures 2.12 & 2.13: Fish pond and animal used for therapy (Meta, 2007)

2.8.2.4 *Conclusion*

The study underlines the importance of aquarium, still pond, fish ponds and animals in the rehabilitation of mental patients. The purpose of this study was to learn the use of natural elements such as water and plant as healing elements in design. The research also brought to bare the ways and means to attract the public into using the facility with the provision of a well furnished restaurants, wellness center (spa) and recreational facilities. Group therapy has also been adopted.

2.8.3 Holy Trinity Spa and Health Farm

Holy trinity spa and health farm was commissioned in 2005 at Sogakope by the then vice president of Ghana, Alhaji Aliu Mahama. It is a destination and medical spa. The spa emphasizes on healthy lifestyles such as exercise, diet and stress management and physical, emotional, psychological and spiritual wellness. The spa offers orthodox medical care, alternative medical care and complementary medical care. Below is a discussion on the planning of the facility and its significance, the design, the materials and finishes employed, the general brief of the facility, the merits and demerits of the spa and the lessons learnt from the study.

2.8.3.1 *Planning*

Area has been zoned into:

- Public area comprises of – restaurant, conference hall, reception hall, parking area.

- Semi-private area comprises of – wellness sanctuary, spa.
- Private area comprises of – accommodation facilities.

The public area is the first point of call when entering the facility so as to prevent people from getting unauthorized access to the private areas.

2.8.3.2 *Design*

River bank chalets have been provided to accommodate clients who visit the centre and wish to stay. A conference hall has been provided for hiring to earn income for the health farm. The walls have been painted in Green and blue colors to blend with the natural elements like the trees and the river on the site. Nature has been incorporated into the design by the provision of manmade waterfalls and fountains with the aim of using water to provide negative ions for healing and relaxation. Animals like ducks, monkeys, horses and birds are present on site because these animals are believed to have healing powers. Tennis court, swimming pool for exercising, chariots, cruise boats are all designed for recreational purposes (Mintah, 2007).

2.8.3.3 *Materials and Finishes*

There was a combination of foreign and local materials. Foreign materials employed were glass for glazing windows at the conference hall, restaurant and the reception; aluminum for the glazed window frames; and tiles for all the washrooms and some therapy rooms. Local materials like timber was used to raise stilts beneath the chalets, stones for cladding on some walls and all the retaining walls, thatch roof for the summer huts, gravels for pavements and bamboo for structures like the summer huts, changing room and fencing.

2.8.3.4 *Activities performed at the Spa*

Activities performed include scientific relaxation, conferences, rejuvenation in the elderly, addiction management, weight management, stress management, convalescing home, alternate therapies, physical exercise, diet/nutrition, health vacation, beauty therapy, physiotherapy, sex therapy and counseling (Mintah, 2007).

2.8.3.5 *Merits*

- Natural elements like the river, thatch roof, stone cladding and bamboo have been inculcated in the design to enhance the natural feel of nature at the Spa.
- Site was planned with the slope in mind. This is evident in the provision of stairs, raising of structures on stilts and utilizing the space underneath the structures as seating areas, provision of retaining walls and the strategic locations of units like the chalets, wellness centre, recreational areas, the restaurant and conference hall.
- The facility has been built along the Volta River and there is an efficient use of water body.

2.8.3.6 *Conclusion*

This case study gave an insight into how to zone the area into public, semi-private and private and the composition of each zone. The case study also shows how to incorporate artificial elements in design and make it appear as natural as possible like the artificial water fall to perform the same functions. Information was gotten on how best to blend local materials like stones, thatch, bamboo and gravels with foreign materials like glass, tiles and aluminium in a design.

2.8.4 Hoogland Health Hydro

Hoogland health hydro is a health resort in Pretoria in South Africa. The facility uses nature to invigorate a person, add quality to life and make a person feel on top of the world. The tranquil piece of nature assists the hydro therapies which have been successfully tried and tested over the years to heal not just an ache or pain, but the whole body. About 30% of patients that receive treatment within the centre are recovered mental patients from psychiatric hospitals. The holistic approach ensures that one can make the most of life as healthy and vibrant (Kruger, 2007).

2.8.4.1 *Activities and facilities*

- Therapy facilities provided at the site include steam bath, sitz bath, sauna, Turkish bath, water jet massage, Jacuzzi, heated swimming pools shown in Figure 2.14 and a massage room as shown in Figure 2.15.

- Clients at the centre are given diet advice, the kind of healthy meals to consume and an advice on how to distil water before drinking. All these pieces of advice are aimed at making clients have a healthy body.
- Exercise classes and aquarobics are also conducted for clients at the centre. This is also aimed at given the client a complete healthy body.
- Lectures/relaxation classes are conducted most evenings (Kruger, 2007).



Figure 2.14: Swimming pool for Hydrotherapy (Kruger, 2007)



Figure 2.15: Massage activities at Hoogland (Kruger, 2007)

2.8.4.2 *Merits*

- Hoogland health hydro has made good use of the underground water beneath the site for man-made swimming pools and other water bodies in the facility.
- Natural elements like stone and wood have been used to enhance the natural quality of the facility.
- Accommodation facilities have been strategically located to offer good view towards mountainous areas (Kruger, 2007).

2.8.4.3 *Structure and Fabric*

The general structure is composed of timber, tiles and glass. Timber is used for flooring, ceiling, window and door frames; Tiles used for swimming pools; Glass for windows and doors; Concrete is used for the main structures (Kruger, 2007).

2.8.4.4 *Conclusion*

This case study shows the use of natural elements and materials to enhance the natural qualities of the facilities. The use of foreign materials like glass and steel blends with the natural environment. This has helped to maintain the natural appearance of the area.

2.8.5 Mount Grace Country House and Spa

Mount Grace Country House and Spa is an hour drive from Johannesburg (approximately 85km from the Johannesburg International Airport). It caters for recovered patients from the psychiatric hospital in Johannesburg and its environs. This gem of country house and spa has been a haven of tranquility and beauty for over 20 years, offering the best of South African rural life. Mountain Grace is the foundation stone of a proud family tradition of hospitality excellence (Glover and Weis, 2007). Mount Grace is set high above a ravine in dense indigenous bush, to offer majestic views and a rich birdlife. Air conditioned stone accommodation with large balconies are the epitome of modern design and comfort. Each unit is totally separate and has its own plunge pool. Building materials employed include concrete, sandcrete, timber, stone, glass, tiles (Glover and Weis, 2007).

2.8.5.1 *Activities Performed at the Spa*

The spa celebrates the classical music festival in July and August. Other activities include tennis and swimming, croquet and bowls, mountain biking, squash, golf and hot air ballooning by arrangement, football, volleyball, bird watching and walks. The spa offers a range of luxurious body and skin treatments. The spa is an exceptionally popular destination for day visitors, overnight guests and conference delegates alike. The hydrotherapy spa gardens remained unrivalled. Water therapy offers the healing and relaxation benefits. This is offered in the outdoor hydrotherapy spa garden, featuring a heated Jacuzzi pool, a refreshing waterfall and the elixir liquid and flotation pool designed for floating. Spa café is located on the veranda which opens during spa hours for refreshments and light meals (Glover and Weis, 2007).

2.8.5.2 *Merits*

- Mount Grace is ideally positioned for that perfect retreat, that is, it is situated in the beautiful Magaliesburg Mountains (Glover and Weis, 2007).

- Mount Grace with its natural environment provides a total de-stressing experience.
- Accommodation facilities have been strategically located to enjoy the nice view towards the mountainous areas (Glover and Weis, 2007).

2.8.5.3 *Conclusion*

This study gave information on how to blend materials like tiles, glass and aluminium with the natural elements like trees, stones, water bodies on site by choosing the right color, texture and design to still give the facility a natural appearance. This study also gave an insight into the type of recreational facilities suitable for a rehabilitation centre. Examples of such recreational facilities are swimming pool, table tennis, football field

2.8.6 Effects of color on human minds.

The human eye can see 7 million colors and all those colors can affect the mind and body. Color can alter moods, influence behaviors and even cause physical reactions like blood pressure or suppressing appetite, headache, nausea or tiredness. Bright colors reflect more light and as a result they excessively stimulate the eyes. Colors also have positive effect on people. For instance, blue soothe illness, pain and relaxes a person's mood (Lynn, 2006). Green is a cool color that symbolizes nature and the natural world. Green stipulates rest, soothing, cheerful and health giving (Kendra, 2007). White represents purity or innocence, creates a sense of space and adds highlights. White is also described as cold, bland and sterile. Rooms may seems spacious and can be unfriendly and empty (Kendra, 2007). This research therefore helped in choosing blue, green and white as the domineering colors used at the spare; green for roof, blue and white used for the walls.

CHAPTER THREE: RESEARCH METHODOLOGY

The main sources used for acquiring data for the thesis were the primary and secondary sources. The participatory data analysis (PDA) also known as the community-based participatory research (CBPR) method was adopted under the primary source whereas the secondary sources comprises of literature review of publications.

3.1 Methods of data collection and analysis

The main sources of gathering research data was through the primary source and the secondary source. The primary source includes the PDA through which interviews are conducted, questionnaires issued out and photo recordings and personal observations are made. The secondary source comprises of literature review of publications including books, journals, conference papers, technical notes and magazines from the library and the internet.

3.1.1 Primary Sources

3.1.1.1 *Participatory Data Analysis (PDA)*

A participatory approach advocates active involvement of the public in decision-making processes. The kind of people interviewed depends on the topic being addressed (Sclocum, 2003). This is a research technique which explicitly and meaningfully draws down upon live social realities of the community. This approach involves community members in all aspects of the research. As cited by Minkler and Wallerstein (2003), community-based participatory research (CBPR) in the health realm is defined as “a collaborative approach to research that equitably involves all partners in the research process and recognizes the unique strengths that each brings”.

The public include average citizens, psychiatrist, nurses and other health workers. In general, policy processes is a three-step cycle of planning, implementation and evaluation (as illustrated in Figure 3.1) whereby a participatory approach has been applied in all the steps. The participation in the planning stage is whereby the public is involved in the initial planning period of the research by obtaining views on the validity of the research topic. Participation in the implementation is on the basis of how the findings of this

research will be executed. Participation in evaluation is getting people to share their views on ways and means of assessing or appraising the validity of the proposal when implemented (Slocum, 2003)

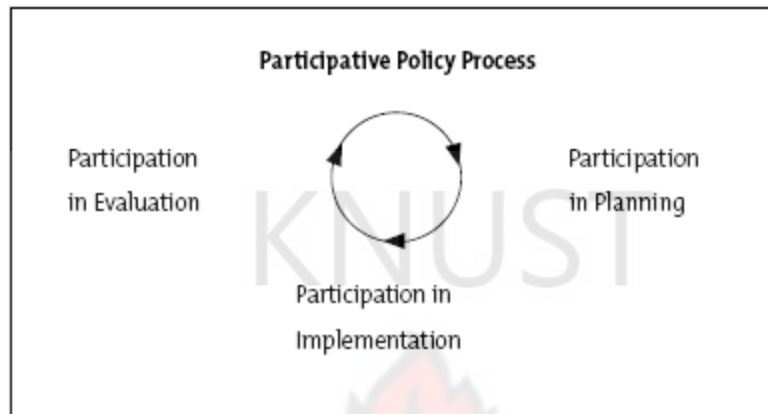


Figure 3.1: Participative Policy Process (Slocum, 2003)

Distinctions have been made between levels of participation, depending upon the objectives of transmitting information and active participation based on a partnership in which public and experts actively engage in decision-making. The PDA (CBPR) begins with a research topic of importance to the community with the aim of combining knowledge and action for social change to improve community health and eliminate health disparities. Implicit in such an approach to research is the principle that community members are not merely “subjects” to be examined, but that community members are seen as participants who bring as much to the research process as a university-based researcher.

Two Psychiatrists and twenty nurses with in-depth knowledge on psychiatry were interviewed to acquire vital information for this thesis. The chief Psychiatrist of Accra Psychiatric Hospital Dr. Akwasi Osei was interviewed to get first hand information on the current situation pertaining in APH and various psychiatric hospitals. Dr. Akwasi Osei made mention of inadequate psychiatric doctors in Ghana, lack of infrastructure in all the psychiatric hospitals in Ghana, recovery rate of patients and importance of rehabilitation to the mentally ill. Dr. Yaw Osei, chief psychiatrist at Komfo Anokye

Teaching Hospital Kumasi, Ghana was also interviewed on the existing situation of the psychiatry department in the hospital. Information was also acquired on the contributions of Kumasi Cheshire Home (rehabilitation centre for the mentally ill) towards the recovery rate of patients. Other medical students and nurses were also interviewed on the current situations of psychiatry in Ghana and what they think should be done to improve the existing situations. In all, 25 people in the health sector were interviewed, 2 chief psychiatrists, 3 medical students and 20 nurses. 3 member family who brought their patient for the first time to Accra Psychiatric hospital were also interviewed to ascertain their opinion on the causes of mental illness and the reaction of people towards mental patients and their families. 15 people were also interviewed from Jumapo community to get their opinions on mental illness, causes, stigma associated with the illness, recovery process believe to help patients recover when adhered to and their views on having a psychiatric rehabilitation centre in their community.

3.1.1.2 Questionnaire

Questionnaires were issued out to obtain information on peoples' views on mental illness. About 85 people answered the questionnaire in Kumasi, 52 in Accra, 18 in Pantang, 15 people from Cape coast and 20 from Jumapo. People gave their opinions on the causes of mental illness, stigma associated with the illness, how mental patients should be treated whether in the hospital, prayer camps, and traditional treatment or left alone to their fate. In all, peoples' candid opinions were obtained and it contributed immensely to this research.

Table 3.1: Statistical Returns of Questionnaires

AREAS	ISSUED OUT	RETURNED
Kumasi	100	85
Accra	100	52
Pantang	30	18
Jumapo	35	20
Cape Coast	30	15
Total	295	180

3.1.1.3 Photo Recordings

Pictures were taken of important spaces and facilities to give a pictorial view of the spaces, facilities and items discussed in this research. Pictures were taken at Kumasi Cheshire Home depicting the various spaces in the facility as well as pictures of the finished products produce by patients. Some pictures were taken of APH to aid in the research but could not be published for security reasons.

3.1.1.4 Personal Observation

Information and data was obtained from the personal visits made. Accra Psychiatric Hospital was visited on the 5th of November 2006 and the 5th of January 2007, for a thorough personal survey of the hospital. A visit was also made to Pantang Hospital on the 11th of November also to gather data. Ankaful Psychiatric Hospital was also visit on the 29th of November for data collection. A personal survey was also done to note the average number of mentally ill on the streets of Accra Central and Kejetia (Kumasi).

3.1.1.5 Case Study

The Layout, Plan and activities of Kumasi Cheshire Home as the only rehabilitation centre for the mentally ill was studied. Vital information on the activities performed was obtained. A case study was also conducted on Holy trinity Spa and Health Farm to study the materials and finishes employed to give the facility its natural appearance. Mount Grace and Hoogland Hydro were also studied to acquire information on layout and the idea behind planning a rehabilitation centre. Technical issues like the type of training conducive for mentally ill, swimming pool and its benefits at the centre, education and research facilities were also covered.

3.1.2 Secondary Source

Vital information were also acquired from books, magazine and journals related to the research. These books, journals and Magazines were available in the library and on the internet.

3.2 STRENGTH OF METHODOLOGY

The greatest strength of conducting this research is that as the research was going on, the randomly selected members could reflect upon their own experiences and behaviors towards the mentally ill as community members. People could also assess how the emerging findings fit with their own understanding of the mental illness. Different views gathered brought richness to the data analysis process.

3.3 LIMITATIONS OF METHODOLOGY

Information given by the public (even health workers) was to some extent untrue. Some wrong information given was based on the fact that people had little knowledge on the illness and its causes and whether or not it can be cured. Some vital information was also withheld for security reasons. Taking pictures of certain important places most especially in the psychiatric hospitals were prohibited. Some assumptions had to be made due to poor record keeping habits.



CHAPTER FOUR: FINDINGS AND DISCUSSIONS

4.1 BACKGROUND INFORMATION

The thesis proposes a rehabilitation centre design meant to facilitate the reintegration of recovered mental patients into society. The centre will help patients take full charge of their life and also contribute to the socio-economic development of the country. Patients in the rehabilitation centre will get the opportunity to interact with people, go through counseling and be trained to acquire skills. The aim is to train inmates in a stress free environment hence the inculcation of a health resort to the training centre. Facilities like restaurant, shops, wellness centre, indoor and outdoor sporting facilities, research centre and attractive landscaping have been provided. Another reason for adding a health resort to the design is to serve as a pull factor to attract the public to use the centre. This will create the opportunity for patients to interact with people especially the ones they feel comfortable being with and also the generate funds for the running of the centre.

4.2 DESIGN CONSIDERATION

Certain design considerations were made in order to achieve a successful development of this proposal. These include Environmental considerations, Architecture of existing building and Design guidelines.

4.2.1 Environmental considerations

The characteristics of the site were considered including the degree of slope, type of soil, drainage, existing major trees including medical plant and the proximity of site to transportation network. The topography and slope of site permits advantageous planning and reasonable economic construction. The site slopes gently from south-western to the north-eastern with the south being the highest point which is 31°. The slope has therefore been factored into the planning and location of facilities on the site. For example, the patient's and staff accommodation were sited on the highest point on the site to take advantage of the good views around the site. The type of soil on the site is lateritic. There is easy access to the site since the site is bordered on the north by the branch tarred road to Jumapo town and on the west by the Kumasi – Koforidua road.

4.2.2 Architecture of existing buildings

The surrounding buildings are single storey rectilinear structures with a maximum vertical room height of 3m. Most of the buildings have stone facing cladding making structures blend well with the environment. A lot of openings have been provided in buildings to allow natural ventilation in buildings.

4.2.3 Design Guidelines

The design will bring into focus a character of a typical rehabilitation centre. The underlying principle for the design will take into consideration function as well as aesthetic. The form of structures on site will be simple and sensitive to the environment. Local materials like stones and timber will be employed on site.

4.3 THE SITE

4.3.1 Site Selection criteria and justification

The following are the 8 reasons why the site was selected and deemed as a very suitable place for the rehabilitation centre.

1. Site is located in the region with the highest number of recovered inmates at the long-stay wards of the three main psychiatric hospitals combined. It constitute one-third of the total population of 350 patients in the long stay wards.
2. Site is located at a place with a serene atmosphere, nice and conducive climate as describe above.
3. Site is not in a remote or isolated area but its 200m near residential neighborhood for inmates to feel part of a community.
4. The site contains sufficient land to permit the development of this facility. The size of the site is 128000 square meters which is large enough for a rehabilitation centre as per the case studies conducted where information research center was on 60000 square meters.
5. Site is located at a quiet area. Upon a visit to the site and the neighboring residential areas, it was realized that even though there are commercial properties like hospitals and schools around, the noise level is still at a lower side.
6. Utility services such as electricity and water are available on site.
7. Site is easily accessed from Koforidua - Kumasi road.
8. Network of auxiliary roads is also available round the site.

4.3.2 The Eastern Region

The site is located at Jumapo in the Eastern region. The Eastern Region, with an area of 19,323 square kilometers, occupying 8.1 per cent of the total land area of Ghana, is the sixth largest region in the country. A total of 2,106,696 people live in the region and they represent 11.1 per cent of Ghana's population. It is the third most populous region, after the Ashanti and Greater Accra regions. The population is made up of 49.2 per cent males and 50.8 per cent females, giving a ratio of 96.8 males to 100 females. The region has four main geographical features, namely:

1. The Kwahu scarp with an elevation of 2,586 feet above sea level.
2. The Atiwa-Atwaredu Ranges near Kibi, reaching an elevation of 2,400 feet.
3. The Akuapem highland attaining an elevation of 1,530 feet which is the southern extension of the Togo-Atakora mountain ranges and
4. The isolated hills/mountains dot the relatively low-lying plains to the south, notably the Krobo and the Yogaga Mountains (Eastern Regional Coordinating Council (ERCC), 2007).

The region is rich in minerals such as gold, diamond, bauxite-tantalite, limestone, kaolin and clay. Gold and diamond are however the only minerals that are mined commercially. For over 70 years, the diamond mines at Akwatia and Takrowase in the Birim River Valley were producing high quality industrial diamonds, but this has declined considerably over the last two decades. Plans to mine the major bauxite deposits at Kibi on the Atiwa Range are yet to materialize due to financial constraints and ecological and environmental concerns. The Range is the habitat of many rare and exotic flora and fauna, and is the source of rivers that are crucial for the survival of many parts of the country. The rivers include Densu River which is the source of water for the Weiija dam at Accra. Ecological and environmental factors are therefore of prime importance in determining the commercial exploitation of the bauxite and other minerals (ERCC, 2007).

4.3.2.1 *Vegetation*

The forest and savannah type of soils are suitable for the cultivation of a variety of crops including cocoa, cola-nuts, citrus, oil palm and staple food crops such as cassava, yam, cocoyam, maize, rice and vegetables. The region contributes significantly to the production of industrial crops such as cocoa, pineapple, pawpaw, cola nut and oil palm and also has a substantial share in the national production of maize, cassava, and citrus. Available also in the region are exotic

crops such as black and sweet pepper, ginger, cashew nuts, Irish potatoes, rubber and mangoes. These are all gaining importance as export commodities. Located in the region are the botanical gardens at Aburi, the remains of the 17th Century slave market at Abonse, Tetteh Quarshie's first cocoa farm, and residence at Akwapim Mampong and the Akonedi shrine, at Larteh. These and the available cruises over the Volta Lake are some of the many attractions that the region offers. The palm tree, which legend claims was climbed by the famous Okomfo Anokye, wearing only a pair of sandals, is located in Awukugua in the Akwapim Hills (ERCC, 2007).

4.3.2.2 Climate

The region lies within the wet semi-equatorial zone which is characterized by double maxima rainfall in June and October. The first rainy season is from May to June, with the heaviest rainfall occurring in June while the second season is from September to October, with little variations between the districts. Temperatures in the region are high and range between 26°C in August and 30°C in March. The relative humidity which is high throughout the year varies between 70 per cent -80 per cent (ERCC, 2007).

4.3.2.3 Occupation

The main occupations of the economically active population in the region are agriculture and related work (54.8%), sales (14.3%), production, transport and equipment work (14.0%) and professional and technical work (6.9%) with services accounting for 5.0 per cent. The four principal occupations for males are agriculture and related work (56.9%), production, transport and equipment work (16.6%), professional and technical work (8.6%) and sales work (6.5%) (ERCC, 2007).

4.3.2.4 Education and literacy

Nearly two-thirds (63.6%) of the population aged 15 years and older are literate (that is able to read and write). The proportion of illiterate is 36.4 per cent of the regional population. The level of literacy is higher for males (73.5%) than for females (54.4%). There is a considerable variation in the literacy levels among the districts. For example, in the Afram Plains District, which has the highest illiteracy level among the districts, almost two out of every three females (65.9%) are illiterates. The next highest illiteracy rate for females is in the Manya Krobo (55.5%), followed by the Yilo Krobo Districts (54.1). Inability to read and write is lower for

males than for females in the districts. The Afram Plains District has the highest illiteracy rate (50.0%) for males, followed by males in the Fanteakwa District (33.7%). The least illiteracy level is in the New Juaben municipality where illiterates constitute 19.0 per cent of the adult population (Eastern Regional Coordinating Council, 2007).

4.3.3 Demography and Economy of Jumapo

The total population of Jumapo is approximately 8000 people with a growth rate of 28% per annum. There is rapid residential development around the site and this is evident through the springing up of new buildings. The economic practices of the inhabitants of Jumapo are on subsistence level, example farming, craftwork and petty trading. Some of the crops cultivated are kola nuts, corn, cassava, cocoa and palm nuts. About 90% of the youth are into some form of education either by going to school or learning of a vocation like carpentry, dressmaking and hair dressing (Eastern Regional Coordinating Council, 2007).

4.3.4 Site Potential

Accra - Kumasi railway line passes through Jumapo. Thus, the revamping of the rail system by the government will provide easy access to the site. Transportation can either be by road or by train. There is also a high tension cable located about 100m away from site providing an easy source of electricity to the site.

4.3.5 Site Inventory

Access to the site is from the Koforidua - Kumasi branch road to Jumapo community. Site slopes from the south-eastern to north-western direction. The site is covered with vegetation. The site has roads adjoining all four sides; two proposed roads at both the eastern and southern boundaries, the Koforidua - Kumasi road at the western boundary and a branch road to Jumapo neighborhoods at the eastern fringes of the site. This indicates that the site can be easily accessed through all four sides. The site offers a captivating view towards the mountainous areas from the southern part.

4.3.6 Existing Site Services

Site services generally describes the type of servicing already found in and around the site which will be beneficial to the project. These services include; electricity, water supply and access to

the site.

4.3.6.1 Electricity and Water supply

Figure 4.1 shows an electrical pole located 50m away from the site which will be capable of supplying the needed power for the facility. There is also the presence of a high tension cable (Figure 4.2) just about 100m away from site. Source of water is from the Suhyen River as well as from boreholes. Figure 4.3 shows a borehole located in a residential property 30m away from the site.



Figure 4.1: Electrical cables found
around site



Figure 4.2: High tension cable 100m
from site



Figure 4.3: Borehole located in one of the neighboring residential facilities

4.3.7 Peripheral Studies

Structures around the site are mostly single-storey rectilinear buildings as shown in Figure 4.4. Jumapo health centre showing in Figure 4.5 is located 300m away from the proposed facility

where patients could visit in case of an emergency. A shell filling station illustrated in Figure 4.6 is located right at the junction where the branch road to Jumapo joins the main Koforidua - Kumasi road serving as a landmark to the site.



Figure 4.4: Residential facility around the site



Figure 4.5: Jumapo Health centre



Figure 4.6: Filling station (a landmark on the site)

4.3.8 Climatic Conditions

Jumapo has a tropical climate with monthly average rainfall ranging between 13.7mm and 195.9mm with a mean of 95.7mm. The monthly average temperatures are between 25.9°C and 29.1°C with a mean of 27.5°C, whereas the monthly average evaporation is between 4.9mm and 6.6mm with a mean of 5.1mm. Relative humidity is generally high, averaging between 65% and 75% (Eastern Regional Coordinating Council, 2007).

4.3.9 Building types

About 85% of the buildings at Jumapo are single storey rectangular forms built with sandcrete or concrete with parapets roof for rainwater harvesting. Most buildings have stone face cladding. Roofs are double pitched covered with aluminum roofing sheet. The floor of almost three quarters (73.8%) of dwelling units in the region is made of cement or concrete. It is the commonest type of floor material used in all districts, particularly in Jumapo (85.8%) (Eastern Regional Coordinating Council [ERCC], 2007).

4.4 DEVELOPED BRIEF

This brief was developed based on the aims, objectives and planning concept of this research. The brief of the rehabilitation centre was categorized into three main zones;

- 1) Public zone which comprises of the entrance lobby, reception, gymnasium, health shop, conference hall, beauty parlor, exhibition hall and restaurant.
- 2) Semi public zone which comprises of the wellness centre, group therapy and counseling rooms, massaging and consulting rooms.
- 3) Private zone comprising of accommodation facilities for patients, single self contained rooms, double self contained rooms and accommodation facilities for staff members.

4.5 CONCEPTUAL SITE PLANNING

The following factors were considered before the site was planned;

- 1) Access and circulation: There is a well defined access to the site. The north is bounded by the Jumapo branch road and the west by the Koforidua-Accra road.
- 2) Site levels: The site slopes from the south western towards the north eastern with the highest point being the south which is 31degrees. The slope of the site was taken into consideration before planning.
- 3) Services like electricity, water and drainage were considered at the conceptual stage and provisions made accordingly.
- 4) Buildings were strategically positioned to benefit from natural ventilation
- 5) Noise pollution: Noise level around the site is very low and will therefore not pose any difficulties.
- 6) Existing major trees, wetlands and water features: Planning was done to take advantage of

the existing trees and water bodies available. Structures were design around water bodies and some existing tress present on site.

4.5.1 Stage One

Based on the factors above, the site was demarcated into three main zones; public, semi-public and private as illustrated in Figure 4.7.

Public zone is located at the northern part of the site which is near the built environment of Jumapo believed to be a noise generating zone. It comprises of the reception, restaurant, conference hall, auditorium, administration and recreational area.

Semi-public zone is located at the central part of the site. This zone comprises of the wellness centre, the garden and the workshops. Even though the wellness centre is suppose to be at a quiet zone, it has been located at the semi-public zone to make it possible for the public to access it when the need arises.

Private zone is located at the southern part of the site near the mountainous area which is the quietest zone on the site and also offers good view towards the mountainous areas. It was conducive from the site study to locate both patients and staff accommodation in the quiet zone. These two facilities have been put together to help staff monitor patients.

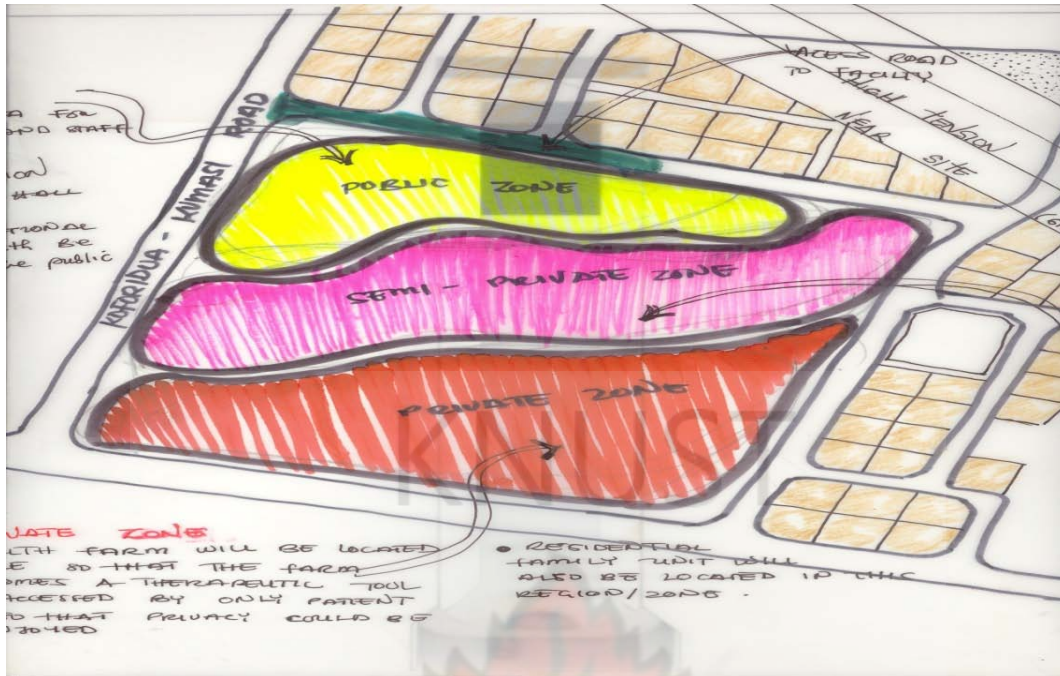


Figure 4.7: Conceptual planning stage one of the site

Legend

- Public zone
- semi-public zone
- private zone

4.5.2 Stage Two

At this stage the zoning was further developed in details based on; accessibility to site, noise level, security, ventilation and slope of land. For stage two, 65% of the land was used leaving the remaining 35% for future expansion. As illustrated in Figure 4.8, the main access to the facility was tapped from the proposed road to Jumapo at the northern part of the site. From the main entrance, a right turn is made towards the reception. The administration, restaurant and the auditorium which forms the public zone are all accessed from the reception area. The recreational facilities (both outdoor and indoor facilities) were located at the southern part of the reception. For the semi-public zone, the wellness centre was located at the north-eastern part of the site. The rest of the facilities were located at the exact positioned mention in stage one. The main problem associated with this arrangement was the fact that, a visitor could access facilities like the wellness centre and the accommodation facilities without necessarily passing through the

reception which is supposed to be the first point of call. Therefore movement through the facility could not be properly monitored.



Figure 4.8: Conceptual site planning for stage two

Legend

- Parking and recreational area
- Reception, auditorium, restaurant and conference hall
- Classrooms and workshops
- Wellness centre
- Swimming pool for hydrotherapy
- Arboretum
- Accommodation facilities

4.5.3 Stage Three

A third option evolved to address issues encountered in stage two. As illustrated in Figure 4.9, when one enters the facility, the first point of call is the reception, which is centrally located and surrounded by the administration, restaurant and auditorium. This makes public movement in the facility well monitored by the staff member. With this concept, there was 100% usage of land. Land was fully used meaning that, the various building units on site were sparsely arranged living long distances between them. The main garden and the swimming pool for hydrotherapy in the facility were located at the private zone, thereby depriving the public from benefiting from them.



Figure 4.9: Conceptual site planning for stage three

Legend

- Parking and recreational area
- Reception, auditorium, restaurant and conference hall
- Classrooms and workshops
- Wellness centre
- Swimming pool for hydrotherapy and cascading water body
- Arboretum
- Accommodation facilities

4.5.4 Stage Four

This option emanated from the fusion of the two ideas gathered from the previous options and also to address the problems of the second option. As shown in Figure 4.10, there was still a 100% usage of land but out of the 100%, 30% was used for an arboretum which could also be used for future expansion when the need arises. The garden was located at the main core of the site which makes it possible for the public to access it without moving into the private zone. The swimming pool for hydrotherapy has been attached to the wellness centre to make public accessibility easier. The accommodation facilities for both the patients and the staff have been located at the highest point on site (that is the southern part) to take advantage of the good views that the site offers.

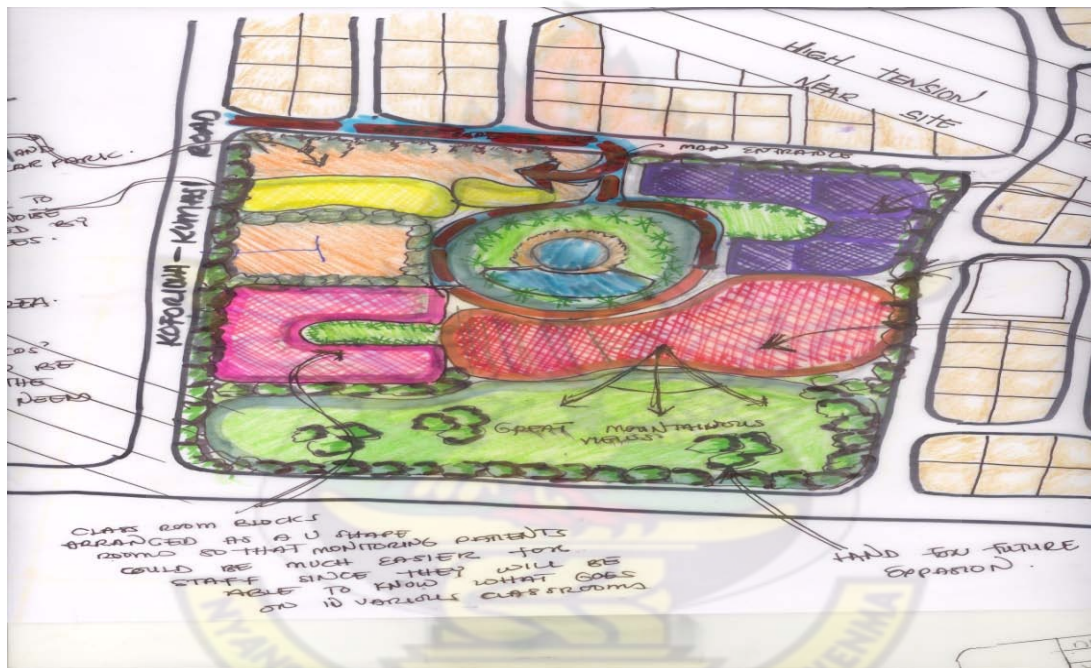


Figure 4.10: Conceptual site planning for stage four

Legend

- Parking and recreational area
- Reception, auditorium, restaurant and conference hall
- Classrooms and workshops
- Wellness centre
- Swimming pool and fountain
- Arboretum
- Accommodation facilities

4.6 FORM DEVELOPMENT

The rectangular plan form of the structures was inspired by the existing architecture at Jumapo. About 99% of the buildings in the region are rectangular in shape and form. This has been adopted to depict to the patients what actually exist in the community. The rectangular form was mostly used in the proposed facility in order to give the right feel of spaces that will be encountered back in the community.

4.6.1 Individual Space Planning

Individual site planning discusses the factors that were considered during the planning of the individual structures on site.

4.6.1.1 *Layout of Patients Accommodation*

Layout as shown in Appendix C illustrates four individual accommodation structures grouped together as one unit with a common courtyard. These groupings help patients interact with each other and are therefore motivated by each others development. This sort of arrangement (Underhill, 2006) helps in group counseling therapy as well due to the fact that patients already live with each other and are therefore well acquainted with each other. Each accommodation unit share spaces like the kitchen, the eating area and a common courtyard and have two supervisors for 16 patients. The research by Zanker (2006) stated that, it is vital to have patient know each other in a rehabilitation centre. Based on this, the swimming pool for hydrotherapy was centrally located between the four units so that all patients at the centre get to know each other during hydrotherapy sessions.

4.6.1.2 *Layout of Workshop*

Each vocation has its own block, the dress making and wreath making are at the western wing, shoe making at the eastern wing and the carpentry at the north wing. It has been well segregated such that no activity conflicts with each other. An outdoor exhibition area has been provided in addition to the indoor exhibition hall at the courtyard so that patients can exhibit their dresses, shoes and other products for the public to appreciate their handiworks. The courtyard has been well landscaped with interspersing water body to give a serene atmosphere.

4.6.1.3 Layout of Wellness Centre

The wellness centre is located at the north-western corner of the facility. It has been strategically located close to the entrance to enable the public to also access the facility. Massaging rooms, saunas, counseling rooms, gymnasium, first aid room, group therapy rooms and offices have been provided. The courtyard system has also been repeated here to serve as a landscape as well as seating area.

4.6.1.4 Layout of Staff Accommodation

Apart from the two supervisors allocated to each accommodation unit for patients, bungalows have also being provided for the rest of the staff at the centre. Each staff accommodation unit is a three bedroom house. Staff accommodation is located adjacent to the patients' accommodation to enjoy the good view towards mountainous areas and to supervise the activities that goes on within the units where the patients reside. Swatches of planting between the accommodation units provide screening and privacy. A staff club house has been provided for recreational purposes.

4.6.2 Structure and Form

The structure of the buildings will be post and beam construction to withstand wind forces prevalent in the area. All load bearing walls will be constructed in reinforced concrete. The infilling material will be sandcrete block, a non-load bearing material. Nearly all the existing buildings are constructed of reinforced concrete or stone masonry. Intermediate floors and roofs are made of timber. The roof is covered with clay tiles as illustrated in Figure 4.11.

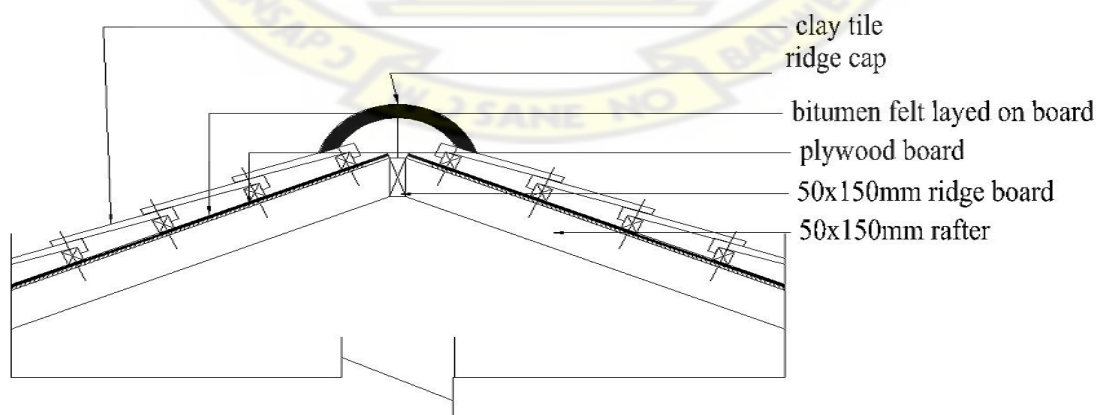


Figure 4.11: A detail of clay tile roof

Openings are symmetrically arranged in plan. The external leaf of walls is made with roughly cut stones, whereas cut stones are used in the corners of the building as well as along the perimeter of openings.

Floors and roofs will be constructed with timber elements of large cross-sectional dimensions. In addition, the timber flooring (made of timber planks arranged perpendicular to the main beams) will be attached (by closely spaced nails) to the beams. The beneficial effect of the timber roofing is the bearing system of the floor, which will make it quite flexible. Floor finish will vary depending on the activity that takes place in the space. For wet areas, non-slip terrazzo floor finish has been proposed. Wooden floor will be used for saunas and gymnasium. Therapy rooms will have ceramic tiles as the floor finish. The rest of the floor will be of polished terrazzo.

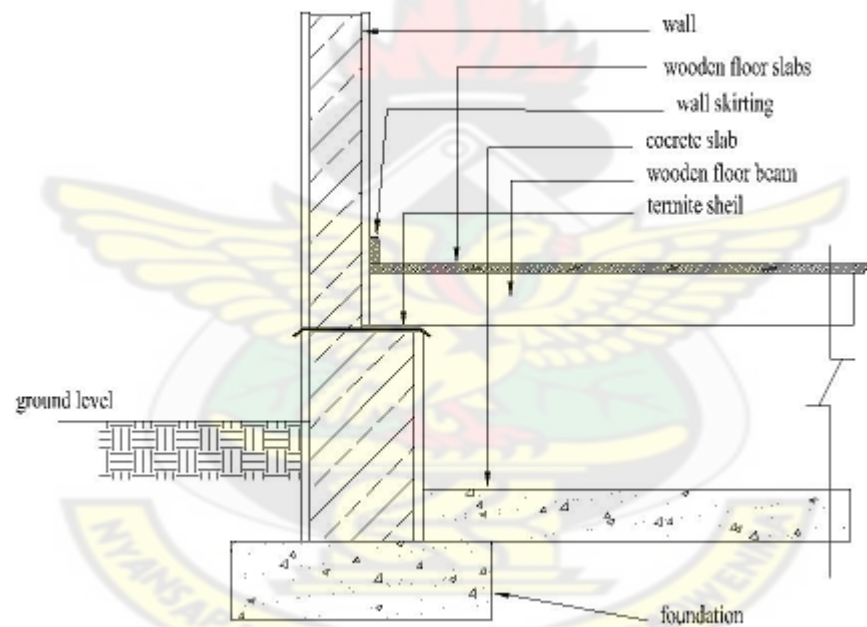


Figure 4.12 Wooden floor finish

4.6.3 Ceiling system

Hardwood timber strips will be used for the ceiling due to the availability of the material. A ceiling system which constitutes inverted T support members will be arranged in a horizontal

joist nailed on wall

150mm block wall

ceiling hanger

t & g ceiling boards

ceiling noggings

corner mold plastering

4.6.3.1 Fenestration

4.7 SERVICES

4.7.1 Water Supply

57

4.7.2 Energy

Electrical power will be tapped from the national grid and distributed to the individual units. A standby generator with an automatic start and stop equipment will be employed. This is to ensure that there is minimal distortion when there is a break in electricity supply. The automatic start and stop equipment will disconnect the main power supply circuits and automatically starts the electric generator. When power is restored, it disconnects the consumption from the generator and restores the main power supply. Power from the generators distributes power only to areas that demands constant uninterrupted power supply as well as essential service areas. A three-phase transformer will be located on the site to ease connection of the proposed development. The buildings therefore will obtain their main power supply from the transformer. The power distribution is grouped in accordance with the various load centers. The various load centers have independent power distribution systems but are centrally monitored from a main switch board. The central electrical control gear (consisting service cable, a triple face supply head, meters, main switch, fuse box, time clock and bank of master switches) will be housed in the control room. Other equipment requiring the same storage conditions will be housed with the control gear. This consists of fire and security control units.

4.7.3 Plant Room

Space has been allocated to be used as the plant room. There is a central plant with no risers. The main plant areas needed are;

- Intake room for water, electricity and communications.
- Transformer chambers and switch rooms.
- Standby generator room
- Sewage pump room
- Air-handling and conditioning plant rooms
- Building management system control room

4.7.4 Sewerage Disposal

All facilities are to be provided with toilets. These water closets are to be connected to a central sewage treatment whereby the soil waste will be treated and disposed off. A centralized refuse collection system will be employed. Dustbins and other collectors will be located at vantage points in and around the facilities. The sewage will flow from various buildings down by gravity

through a 200mm diameter pipes into an onsite receptor tank. Inspection chambers will be located at specific centers along the sewerage lines. The sewerage will be pumped into the existing sewerage system.

4.7.5 Surface Drainage

A network of covered gutters, storm drains and culverts will be provided to aid run-offs.

Rainwater from roofs will be harvested. Intercepted water will be channeled into drains that run along the site periphery. The hierarchy of drains is located strategically to take advantage of site topography. Landscaped areas, which are of considerable distance from the main drainage lines, will be sloped gently in accordance with site topography to discharge water into gravel and perforated pipes buried in the ground.

4.7.6 Waste Management

Central collection system of refuse disposal will be used in the facility. There will be waste bins which will be disposed-off by waste vans periodically. The floors of this waste yard are reinforced concrete to accommodate the impact from falling refuse. The floors are elevated 300mm high for easy tipping-out. Dustbins will be located in pedestrian walkways.

4.7.7 Car Parking Provision

The size of each parking space is 2.5m x 5m

- | | | |
|---------------|---|--|
| Staff members | - | one space per 4 others |
| Restaurant | - | one space for each 2 seats in the dining area. |

4.7.8 Ventilation

Natural ventilation has been employed through the design of the facility. The provision of courtyards, building orientation and open spaces has been used to argument natural ventilation in the facility. Fans have been provided for artificial ventilation.

4.7.9 Lighting

Introduction of open spaces admits a lot of day lighting into the facility. Notwithstanding this, provisions for artificial lighting have also been made. Intensity of lights will be graded increasing towards the entrances and exits and courtyards. General lighting is design with a

4.7.10 Fire Protection

Building regulations require considerations with regards to the inflammability of materials, the duration of fire resistance of the components expressed in terms of fire resistance classifications, the integrity of the sealing of openings and the arrangements of escape routes. The aim of this is to prevent the start and spread of fire, stem the spread of smoke and facilitate the escape or rescue of persons and animals. Both active and passive precautions have been taken against fire. Active precautions are the systems that have been put in place to curtail the fire when it occurs. Passive measures are the construction solutions in the building and its components. Active precautions include smoke and fire alarm systems, sprinkler systems spaced 5m apart and fire extinguishing installations. Passive precautions relate mainly to minimum structural sections, casings and coatings (Neufert, 2006).

Sprinkler heads and hose reels supplied by mains are placed at strategic location within the facility as a fire fighting measure. Automatic fire alarm systems are installed. These operate on the principle of heat sensing and smoke detection. It consists of fire alarm initiators, indication panels and bells. Smoke detectors are located at vantage points. Fire extinguishers located at strategic intervals within the facility is an additional source of fire control. Fire hydrants are located 120m apart on site to aid fire service when the need arises (Neufert, 2006). Escape doors open 90° in the direction of travel and can easily be opened. Escape doors are provided and the ventilation system will be arranged to preclude the use of corridors as plenum chambers and also positioned so that users will be away from the fire after using the exit. Escape routes have been well lit with artificial lighting provided so that it will be very obvious to users in case of fire.

4.8 LANDSCAPING

Creation of learning and healing environment requires the interplay of nature and built environment. It is important to design the spaces between buildings as it is with the structure itself. It is also particularly important to have more soft spaces (Turner, 2004). Functionality and aesthetically pleasing materials will be used for the circulation routes. Brick streets and sidewalks that will withstand the rigors of heavy pedestrian traffic will be employed.

Adequate seating, lighting and signage will be provided. Pedestrian walkways have a width of 2m. The walkway between clips of hedges is 3.0m wide. Trees and street furniture will be located at the outer-edge of walkways in order to leave a clear path to prevent any form of obstructions. A large turning circle with water feature is incorporated to create an appropriate entry to the facility. There is a herb garden in front of the wellness centre to provide color, scent and texture. Trees have been strategically located to create privacy, allow views and minimize bushfire potential.

4.8.1 Pedestrian Ramps

Pedestrian ramps have been provided for the physically challenge to allow wheelchairs to change levels. The slope of ramp is about 3 per cent. The width of ramp is 2m. Reinforced concrete with rough terrazzo floor finish has been used for the construction of the ramp. Surfacing will have grip, with low kerbs (at least 50mm high) along the edges of the ramp. Landings have been used to break the flow of rainwater from running rapidly down the ramp.

4.8.2 Handrails and Seating

Handrails have been attached to all stairways and ramps. The height of handrails for the outdoor steps and ramps ranges between 800mm – 1000mm. Park benches have been located in the garden. Armrest and heel space have been attached to the bench seat to suit people with limited strength.

4.8.3 Street Furniture

Semi-open top litter bins which are relatively easy to operate have been placed in the compound. Sign posts have also been positioned at vantage points for easy movement within the facility. Barriers have been used on site for the main purpose of; privacy, safety, security, boundary definition, circulation control and environmental modification. Pointed top round bar fencing has been used to fence the whole facility. Some summer huts have mortar- laid stone for roofs. Stones cladding have also been used for walls and other structures on site.

4.8.4 Bushfire Management Requirement

Planting within the rehabilitation centre will follow the following bushfire management requirements:

- Trees will be located so canopies will not touch roof structure.
- Not more than three trees will be located with touching canopies.
- Trees will be located minimum of 10m apart.
- No tree will be planted within 6m of the entry road edge.
- Height of trees will be a maximum of 900mm where planting occurs within 2m of buildings and other structures.
- All exposed area will be covered with grass or planting (Turner, 2004).

4.9 CONCLUSION

All the above factors discussed in this chapter were carefully considered and adopted before the design shown in Appendix C was achieved.



CHAPTER FIVE: CONCLUSION AND RECOMMENDATION

The goal of this proposed rehabilitation centre is to help reintegrate recovered mental patients into the community. This will enable these patients take responsibility of their lives and contribute to economic development. Research has shown that majority of people with mental illness achieve genuine improvement in health over time and lead stable, productive lives. As the treatment of mental illness has advanced, the focus of treatment has shifted from simply minimizing symptoms to true recovery that is, to reintegration into mainstream society, including (and perhaps most importantly) the world of work.

5.1 CONCLUSIONS

The current state of mental health in many developing countries is the result of decades of neglect, through ignorance, prejudice and resultant stigma. The time has come to roll back the shroud of neglect to allow mental health care to contribute to the quality of care and also life. The way to break down the wall of prejudice is to involve the public in the recovery of the mentally ill. It is for this reason that the proposed rehabilitation centre includes the public in the use of the facility of the healing process of the patient. Patients in the rehabilitation centre will also be trained to acquire skills which will enable them to work when discharged. Experts increasingly acknowledge that work is a key factor in supporting the recovery of mental illness. Meaningful employment is therefore an essential part of the recovery process. The goal of treatment at the centre is to assist patients to gain control of their lives through skills acquisition.

5.2 RECOMMENDATIONS

5.2.1 Proposals for improved services

Since the 19th century great strides have been made in the development of psychiatric services in Ghana from its humble origins. However, a lot more needs to be done if the standard of psychiatric care is to be raised to the level commensurate with recent advances.

These include;

- 1) Investment in infrastructure, 2) Training of personnel and 3) Public education

5.2.1.1 Investment in Infrastructure

The Government's policy of expanding psychiatric services to district and regional hospitals ought to be commended (Osei, 2007). This will include extension of services for primary psychiatric care in remote areas owing to the present skewed distribution of facilities, where patients have to travel hundreds of miles for treatment. I recommend that prototype of this rehabilitation centre is built in all ten regions in the quest of government executing this policy.

5.2.1.2 Training of Personnel

Establishing an accelerated training program for all levels of personnel, including psychiatrists, locally (not compromising on internationally accredited standards of teaching and care) to provide a regular stream of staff to man the hospitals and health centers.

5.2.1.3 Public Education

Public education on mental health plays an important part in the rehabilitation of mental patients. The main objective is to promote a better understanding and acceptance of discharged mental patients by the community. It also aims at educating the general public to recognize the causes and symptoms of mental illness, and the need for early treatment to prevent the onset of residual disability, and to know where treatment and rehabilitation services are available. When the public become more aware of the importance of mental health care, discharged mental patients will be more accepted by the community.

The public attitude to the mentally ill is also the result of misconceptions and prejudice thereof. This too like the education of the professionals in mental health needs to be done to overcome the stigma that shrouds the future of the mentally ill. Their dependence on their families at an adult age is often yet another reason for the rejection, prejudice and stigma. While modern medicines can control the symptoms of most severe mental illnesses, they can rarely make a person return to a full productive life after an illness. In these persons, a graduated process of healing using psychological, social, occupational and medical techniques of rehabilitation can produce remarkable changes in the person's functional ability. The rehabilitation of recovering mental patients is best carried out in the community setting on a day basis. Research has proven

that recovering from mental illness is possible. Therefore, the goal of treatment is to assist people in regaining control of their lives and contributing their quota to economic development.

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APPENDIX A: ESTIMATED PROJECT COST

COSTING

Cost is predictive and comprehensive. It depends on three variables.

A - Cost/ m²

B – Fixed equipment = 5% of A

C – Site development = 15% of A

SPACE	AREA m ²
RECEPTION	
Entrance lobby	35
Entrance foyer	65
Washroom	21.6
Health shop for herbal medicine	27.5
Health shop for foreign medicine	27.5
3 exit	45
TOTAL	221.6

RESTAURANT	AREA m ²
Stair lobby	86
Entrance lobby	12
Indoor eating area	440
Outdoor eating area	400
Bar	16
Store room	12.8
Manager's office	11.2
Kitchenette	25
Washroom	15
TOTAL	1018

ADMINISTRATION	AREA m²
Stair lobby	86
Entrance foyer	60
Reception	9
Staff room	28
Computer room	17.2
Equipment room	11
Store room	18
Conference room	60
Balcony	35
Corridor	20
2 office spaces	33
Office space 2	30
Washroom	15
Back entrance	16.8
TOTAL	439

AUDITORIUM	AREA m²
Entrance lobby	36
Entrance foyer	42
Business centre	25
Office	11.2
Coffee shop	11.2
Auditorium	180
Store room	8
Washroom	14.4
Stage	21
Backstage	24
Back office	15
Changing room	33
TOTAL	420.8

Facility A, comprises of Reception, Restaurant, Administration and Auditorium.

Total area in square metre for Reception	= 221.6
Total area in square metre for Restarant	= 1018
Total area in square metre for administration	= 439
Total area in square metre for Auditorium	= 420.8
Total area of pavement around facility	= 280.6
GRAND TOTAL	= 2380

1000GH cedis per square metre

Therefore total cost for **facility A** will be

$$= 2380 \times 1000$$

$$A - \text{COST/ m}^2 = \text{GHS}2,380,000$$

$$B - \text{Fixed equipment} = 5\% \times 2,380,000$$

$$= 119,000$$

$$C - \text{Site development} = 15\% \times 2,380,000$$

$$= 357,000$$

$$\text{Total Construction Cost} = A+B+C = \text{GHS}2, 856,000$$

SPORT CENTRE	AREA m ²
Entrance lobby	30
Sitting area	42
Sporting area	300
Indoor swimming pool	128
Activity area 1	67.5
Activity area 2	72
Sitting area 2	64
Changing / wash rooms	121
Equipment room	18
Store room	15
TOTAL	857.5

Facility B is a sports centre

Total area of sports centre = 857.5

Total area of pavement = 214

GRAND TOTAL = 1071.5

1000GH cedi per square meter

Therefore total cost for **facility B** which is the sports centre

= 1071.5 x 1000

A - COST/ m² = GHS1, 071,500

B – Fixed equipment = 5% x 1,071,500 = 53,550

C – Site development = 15% x 1,071,500 = 160,725

Total Construction Cost = A+B+C = **GHS1, 285,775**

SEMI – PRIVATE ZONE

WELLNESS CENTRE	AREA m²
Entrance foyer	125
Staff room	100
Doctor's rest room	54
2 group therapy room	80
Washroom	24
Waiting area	38
3 counseling rooms	54
Changing room	48
4 therapy rooms	100
4 massage rooms	120
Gymnasium	175
Equipment room	15
Changing rooms	35
Courtyard	320
Terrace	2m (width)
Outdoor swimming pool	504
TOTAL	1794

Facility C is the wellness centre

Total area of wellness centre = 1794

Total area of pavement = 240

GRAND TOTAL = 2034

Therefore total cost for **facility C** which is the wellness centre

1000GH cedi per square metre

= 2034x 1000

COST = 2,034,000GH cedis

A - COST/ m² = GHS2, 034,000

B – Fixed equipment = 5% x 2,034,000

= 101,700

C – Site development = 15% x 2,034,000

= 305,100

Total Construction Cost = A+B+C = **GHS2,440,800**

WORKSHOP	AREA m²
Pavilion	2000
STRUCTURE A	
Entrance foyer	22.5
Office	64
Staff room	80
Store room	130
2 Ribbon décor design space	168
2 Wreath making space	304
SUB TOTAL	768.5
STRUCTURE B	AREA m
Entrance foyer	22.5
Office	64
Staff room	80

Store room	100
2 dressmaking space	252
2 tie and die making room	224
SUB TOTAL	742.5
STORAGE AREA FOR RAW MATS.	
5 Store rooms	341
Sanitary area both male & female	120
SUB TOTAL	461
STORAGE AREA FOR FINISHED PDTS.	
8 Store rooms	467
Lavatory	36
SUB TOTAL	503
STRUCTURE C	
Entrance foyer	22.5
Office	64
2 Shoe making space	180
Changing room	96
2 Bag making space	180
Store room	120
SUB TOTAL	662.5
GRAND TOTAL	5137.5

Facility D is the workshop

Total area of workshop = 5137.5

Total area of pavement = 400

GRAND TOTAL = 5537.5

Therefore total cost for **facility D** which is the sports centre

1000GH cedi per square meter

= 5537.5 x 1000

$$A - \text{COST/ m}^2 = \text{GHS}5,537,500$$

$$B - \text{Fixed equipment} = 5\% \times 5,537,500 \\ = 276,875$$

$$C - \text{Site development} = 15\% \times 5,537,500 \\ = 830,625$$

$$\text{Total Construction Cost} = A+B+C = \text{GHS}6,645,000$$

PRIVATE SPACE

PATIENT'S ACCOMMODATION	AREA m ²
Entrance foyer	120
Courtyard	225
Library	49
T. V room	49
Dining area	56
Kitchen	30
Caretaker's room	42
Equipment room	22
Store room	22
Corridor	26
Self-contained bedroom	38
2 executive suite	96
10 self-contained bedroom for patients	370
Sitting area	64
TOTAL	1209
For 4 prototype	4836

Facility E is Patient's Accommodation

$$\text{Total area of 4 prototype of facility E} = 4836$$

$$\text{Total area of pavement} = 214 \times 4 = 856$$

$$\text{GRAND TOTAL} = 5692$$

Therefore total cost for **facility E** which is the sports centre

1000GH cedi per square metre

$$= 5692 \times 1000$$

$$A - \text{COST/ m}^2 = \text{GHS}5,692,000$$

$$B - \text{Fixed equipment} = 5\% \times 5,692,000$$

$$= 284,600$$

$$C - \text{Site development} = 15\% \times 5,692,000$$

$$= 853,800$$

$$\text{Total Construction Cost} = A+B+C = \text{GHS}6,830,400$$

STAFF ACCOMMODATION	AREA m ²
Entrance porch	60
Living and dining area	120
kitchen	30
Sanitary area	18
Bedroom 1	35.75
Bedroom 2	30
Master bedroom	52
Sanitary for master bedroom	12
Corridor	30
TOTAL	377.75

Facility F is staff accommodation

$$\text{Total area of 6 staff accommodation} = 377.75 \times 6 = 2266.5$$

$$\text{Total area of pavement} = 100 \times 6 = 600$$

$$\text{GRAND TOTAL} = 2866.5$$

1000GH cedi per square metre

Therefore total cost for **facility F** which is the 6 Staff Accommodation

$$= 2866.5 \times 1000$$

$$\text{COST} = 2,866,500\text{GH cedis}$$

$$A - \text{COST/ m}^2 = \text{GHS}2,866,500$$

$$B - \text{Fixed equipment} = 5\% \times 2,866,500 \\ = 143,325$$

$$C - \text{Site development} = 15\% \times 2,866,500 \\ = 429,975$$

$$\text{Total Construction Cost} = A+B+C = \text{GHS}3,439,800$$

RESEARCH CENTRE	AREA m ²
Reception	28
2 Offices	70
Sanitary area	33.75
3 Store rooms	55.75
Staff rooms	75
3 Laboratories	250
TOTAL	512

Facility G is the Research Centre

$$\text{Total area of Research centre} = 512$$

$$\text{Total area of pavement} = 214$$

$$\text{GRAND TOTAL} = 726$$

Therefore total cost for facility G which is the research centre

$$1000\text{GH cedi per square metre}$$

$$= 726 \times 1000$$

$$\text{COST} = 726,000\text{GH cedis}$$

$$A - \text{COST/ m}^2 = \text{GHS}726,000$$

$$B - \text{Fixed equipment} = 5\% \times 726,000 \\ = 36,300$$

$$C - \text{Site development} = 15\% \times 726,000 \\ = 108,900$$

$$\text{Total Construction Cost} = A+B+C = \text{GHS}871,200$$

- Total area for **parking** 2500m²

250GH cedi per square metre

$$= 2500 \times 250$$

$$\text{COST} = 625,000\text{GH cedis}$$

$$\text{A - COST/ m}^2 = \text{GHS}625,000$$

$$\text{B – Fixed equipment} = 5\% \times 625,000$$

$$= 31,250$$

$$\text{C – Site development} = 15\% \times 625,000$$

$$= 93,750$$

$$\text{Total Construction Cost} = \text{A+B+C} = \text{GHS}750,000$$

- Total area for **landscape** 4300m²

450GH cedi per square metre

$$= 4300 \times 450$$

$$\text{COST} = 1,935,000\text{GH cedis}$$

$$\text{A - COST/ m}^2 = \text{GHS}1,935,000$$

$$\text{B – Fixed equipment} = 5\% \times 1,935,000$$

$$= 96,750$$

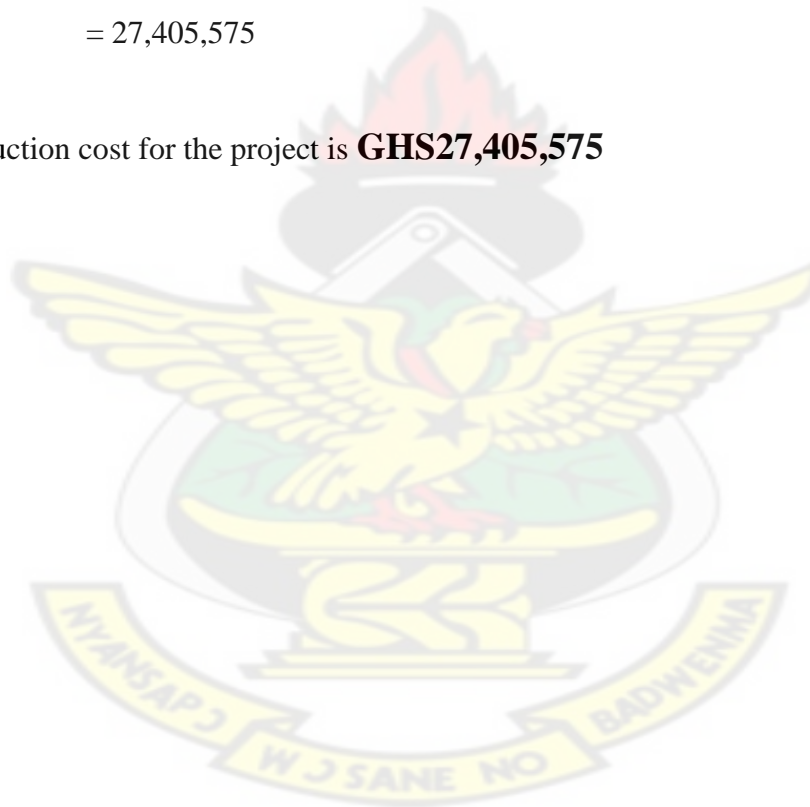
$$\text{C – Site development} = 15\% \times 1,935,000$$

$$= 290,250$$

$$\text{Total Construction Cost} = \text{A+B+C} = \text{GHS}2, 322,000$$

TOTAL COST	GHC
Facility A	= 2,856,000
Facility B	= 1,285,775
Facility C	= 2,406,000
Facility D	= 6,645,000
Facility E	= 6,830,000
Facility F	= 3,439,800
Facility G	= 871,000
Parking Area	= 750,000
Landscape Area	= 2,322,000
	= 27,405,575

The total construction cost for the project is **GHS27,405,575**



Questionnaire for the Public

General Information

1. Have you heard about mental illness?

- ☐ Yes ☐ No

2. If yes, then what do you think are the causes of the illness?

- ☐ Demonic Cause ☐ Hereditary ☐ Natural cause ☐ Other causes

3. Have you come into contact with a mentally ill patient before?

- ☐ Yes ☐ No

4. Do you think they should be allowed to mingle with the society?

- ☐ Yes ☐ No

5. Are you willing to work / assist them?

- ☐ Yes ☐ No

6. Where do you think they should be treated?

- ☐ Psychiatric Hospital ☐ Prayer camps ☐ Fetish priest ☐ Others

7. Do you think patients suffering from mental illness really recover?

- ☐ Yes ☐ No

Questionnaire for the Public

8. Do you think stigma still exist?

☐

Yes

☐

No

9. What do you think should be done to combat the stigma associated with the illness?

☐

Public education

☐

School education

☐

Self education

☐

No education

Any other comments

Please share any additional comments.

Personal Information

Providing the following information is optional.

First Name: _____ Last Name: _____

Address: _____

City: _____ State: _____ ZIP Code: _____

Telephone: _____ Gender: _____ Age: _____

Thank you for taking time to fill out this questionnaire. Your input is greatly appreciated.

Questionnaire for psychiatrist and nurses

General Patient Profile

1. What is the total number of patients at the hospital?

- ☐ Less than 200 ☐ 200-500 ☐ 500-1000 ☐ More than 1000

2. How many of these patients are males?

- ☐ Less than 200 ☐ 200-500 ☐ 500-1000 ☐ More than 1000

3. How many of these patients are females?

- ☐ Less than 200 ☐ 200-500 ☐ 500-1000 ☐ More than 1000

4. How many patients were admitted as a result of schizophrenia?

- ☐ Less than 200 ☐ 200-500 ☐ 500-1000 ☐ More than 1000

5. How many patients were admitted as a result of drug abuse?

- ☐ Less than 200 ☐ 200-500 ☐ 500-1000 ☐ More than 1000

6. How many patients were admitted as a result of other causes of mental illness apart from schizophrenia and drug abuse?

- ☐ Less than 200 ☐ 200-500 ☐ 500-1000 ☐ More than 1000

Questionnaire for psychiatrist and nurses

7. How long does it take a patient to recover?

- ☐ Less than 2 weeks ☐ 2 – 6weeks ☐ 6 – 12weeks ☐ More than 12weeks

8. How many of these patients get recovered and discharged at the end of the year?

- ☐ Less than 200 ☐ 200-500 ☐ 500-1000 ☐ More than 1000

9. How many of these discharged patients do their relatives come for?

- ☐ Less than 200 ☐ 200-500 ☐ 500-1000 ☐ More than 1000

10. How many of these patients (from data collected by the community psychiatric nurses) are able to live a normal life when they move back into the community?

- ☐ Less than 200 ☐ 200-500 ☐ 500-1000 ☐ More than 1000

11. How many of these patients return back to the hospital with the same illness after being discharged?

- ☐ Less than 200 ☐ 200-500 ☐ 500-1000 ☐ More than 1000

12. How many of these patients are reluctant to leave the hospital as a result of being abandoned by their relatives even after recovery?

- ☐ Less than 200 ☐ 200-500 ☐ 500-1000 ☐ More than 1000

Questionnaire for psychiatrist and nurses

Conditions at the hospital

1. What is doctor – patient ratio at the hospital?

- ☐ 1: 10 ☐ 1:50 ☐ 1:100 ☐ More than 100

2. What is nurse – patient ratio at the hospital?

- ☐ 1: 10 ☐ 1:50 ☐ 1:100 ☐ More than 100

3. What is the bed capacity in the hospital?

- ☐ Less than 200 ☐ 200-500 ☐ 500-1000 ☐ More than 1000

4. What is the state of the structures at the hospital?

- ☐ Good state of repairs ☐ Needs maintenance ☐ Not good

Relatives Involvement in the recovery process

1. How would you rate relatives concern for these patients?

- ☐ Outstanding ☐ Good ☐ Adequate ☐ Needs improvement ☐ Poor ☐ N/A

2. How often do relatives visit their wards within a month?

- ☐ 1 Visit ☐ 2-5 Visits ☐ More than 6 ☐ No Visits

Questionnaire for psychiatrist and nurses

Community care

1. What scale would you place the level of understanding/education the society has concerning mental illness in Ghana? Less than 1- no information on mental illness, 1-5 – have an average level of information on mental illness and 5-10 – knows a lot about mental illness.

☐ ☐ ☐
Less than 1 1-5 5-10

2. At what level will you rate stigmatization in the society? High – on a scale of 90% - 100%, moderate – on a scale of 50% - 89% and low – on a scale of 0% - 49%

☐ ☐ ☐
High Moderate Low

3. How long did you wait to speak to a scheduling staff member?

☐ ☐ ☐ ☐
0 to 2 minutes 3 to 5 minutes 5 to 7 minutes Longer

Any other comments

Please share any additional comments.

Personal Information

Providing the following information is optional.

First Name: _____ Last Name: _____

Address: _____

City: _____ State: _____ ZIP Code: _____

Telephone: _____ Gender: _____ Age: _____

Thank you for taking time to fill out this questionnaire. Your input is greatly appreciated.